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ACCEPTANCE AND INTERPERSONAL FUNCTIONING:

TESTING MINDFULNESS MODELS OF EMPATHY

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Acceptance and Interpersonal Functioning:

Testing Mindfulness Models of Empathy

by

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TESTING MINDFULNESS MODELS OF EMPATHY

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A study on the relationship of mindfulness to empathy was conducted with undergraduate students at a large southwestern university. Previous studies suggest that mindfulness may be related to empathy, but are inconclusive due to measurement and methodological limitations. A mindfulness construct that includes axioms related to intention, attention, and attitude is suggested for researching empathy, along with statistical models that include mediation. A multifactored measure of mindfulness was hypothesized to predict perspective taking and empathic concern empathy components, which in turn would mediate the relationship of mindfulness facets to individual and interpersonal outcomes. Study results suggest a relationship of mindfulness to perspective taking, but not to empathic concern. Results from the mediation procedures were not supportive of the theorized role of empathy in relation to mindfulness on individual and interpersonal outcomes. Implications and limitations to the study design and theory are discussed.

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Chapter 1 - Introduction

Mindfulness is defined as a state of consciousness where particular, purposeful focus and attention is on what is taking place in the present, coupled with a non-judgmental orientation toward inner experience (Bishop et al, 2004; Brown & Ryan, 2003; Hayes, 2004; Hayes & Wilson, 2003; Germer, Siegel & Fulton, 2005; Shapiro, Carlson, Astin & Freedman, 2006). Research supports the association between mindfulness and interpersonal well-being variables, including empathy (Beitel, Ferrer, & Cecero, 2005; Block-Lerner, Adair, Plumb, Rhatigan, & Orsillo, 2007; Lesh, 1970; Shapiro, Schwartz, & Bonner, 1998; Wachs & Cordova, 2007). These studies have relied on one-dimensional measures of mindfulness, however. Newer mindfulness measures include facets that may be related to both cognitive and affective forms of empathic responding in ways that differ from previous measures (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Block-Lerner et al., 2007). This study aims to explore mindfulness mechanisms by studying the relationship of various mindfulness components to empathy. It is hypothesized that empathy is related to aspects of attention and attitude in mindfulness, and that statistical analyses will show that empathy mediates the relationship of mindfulness components to outcomes of psychological distress, anxiety, and relationship satisfaction.

Recent years have seen a rapid growth of research on mindfulness theory and skills within contemporary psychology (Baer, 2003; Dimidjian & Linehan, 2003; Grossman, Niemann, Schmidt & Walach, 2004; Kabat-Zinn, 2003; Wallace & Shapiro, 2006; Walsh & Shapiro, 2006). The goal of mindfulness training is to cultivate a non-

judgmental and accepting orientation toward experience, both internal and external (Baer, 2003; Kabat-Zinn, 1990; Shapiro & Schwarz, 2000), amenable for maintaining present awareness. Mindfulness has long been associated with meditative practices within Buddhist psychology, where it is considered necessary for relieving suffering in self and others by helping cultivate a sense of compassion and connection with others and the world around (Dudley-Grant, Bankart, & Dockett, 2003; Fulton & Siegel, 2005; Germer, 2005). However, much of the current interest has occurred within contexts apart from traditional Buddhist settings, most notably in therapeutic interventions in clinical and medical psychology (Shapiro, Carlson, Astin, & Freedman, 2006).

Proposed benefits of maintaining a mindfulness orientation are both psychological and interpersonal (Carson, Carson, Gil, & Baucom, 2004; Kabat-Zinn, 1990; Linehan, 1993). Traditionally, mindfulness is believed to be associated with increased awareness, insight, wisdom, compassion and empathy, and self-regulation (Baer, Smith, & Allen, 2004; Bishop et al., 2004; Brown & Ryan, 2003; Chappell, 2003; Germer, 2005; Kabat-Zinn, 1990; 2003; Shapiro et al., 2006; Wallace & Shapiro, 2006). Mindfulness is also considered necessary to cultivate a sense of connection, or oneness, with the world (Dockett & North-Schulte, 2003; Neff, 2003; Surrey, 2005), which in turn is expected to minimize interpersonal dysfunctional behaviors (Burpee & Langer, 2005; Christensen, Sevier, Simpson & Gattis, 2004; Fruzzetti & Iverson, 2004; Linehan, 1993).

Research using self-report measures of mindfulness gives support for the proposed benefits of mindfulness (Baer, Smith, & Allen, 2004; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Brown & Ryan, 2003; 2004; Shapiro et al., 2006). Self-

report measures of mindfulness have also been useful for conceptualizing various components of an overall mindfulness construct (Baer et al., 2006; Shapiro et al., 2006). One new measure in particular, the Five Factor Mindfulness Questionnaire (FFMQ: Baer et al., 2006), combines several mindfulness scales into one measure representative of a multidimensional mindfulness model. Preliminary research with the FFMQ suggests mindfulness components related to awareness and acceptance play an important role in bringing about psychological benefits commonly associated with mindfulness.

One group of researchers has argued that previous research validates the efficacy of mindfulness, but has not confirmed how or why it works (Shapiro, Carlson, Astin, & Freedman, 2006). According to the authors, traditionally mindfulness was not intended solely for attention or awareness, but for well-being, enlightenment, and compassion for all beings. The authors proposed a three axiom model of mindfulness that, like previous mindfulness models, includes attention and attitudinal qualities such as acceptance and compassion, but adds one's intent or purpose for practicing mindfulness. The IAA model of mindfulness allows for the inclusion and exploration of variables related to mindfulness mechanisms that are often not taken into account in current mindfulness conceptualizations and research, including interpersonal variables such as compassion and empathy.

Empathy is considered a mindfulness quality in Buddhist psychology, and may be beneficial for cultivating compassion through mindfulness practice (Block-Lerner, Adair, Plumb, Rhatigan, & Orsillo, 2007; Chappell, 2003; Kabat-Zinn, 1990; Morgan & Morgan; Scuka, 2005; Shapiro & Schwartz, 2000). Empathy requires one to feel and

understand another's situation in the present moment (Fulton, 2005; Morgan & Morgan, 2005; Scuka, 2005), and usually involves communicating it to him or her in some way (Shapiro & Schwartz, 2000). Studies suggest empathy components of perspective taking and empathic concern are related to qualities of attention and attitude in mindfulness (Beitel, Ferrer, & Cecero, 2005; Block-Lerner et al., 2007; Shapiro, Schwartz, & Bonner, 1998; Wachs & Cordova, 2007). Previous studies on mindfulness and empathy vary in their results, due possibly to the use of one-dimensional mindfulness measures, as well as a lack of research designs amenable for measuring mindfulness mechanisms based on the IAA model (Shapiro et al., 2006). Shapiro et al. suggested the use of statistical analyses with mediation models to explore mindfulness mechanisms. Based on IAA tenets that suggest mindfulness mechanisms include the effects of contextual variables related to these mechanisms, empathy should mediate the relationships of mindfulness components to individual and interpersonal well-being outcomes (Baumeister & Leary, 1995; Linehan, 1993; Shapiro et al., 2006).

Previous studies involving mediation models with mindfulness may give support to Shapiro et al. (2006). For instance, a recent study by Hoopes, McCarthy, and Richardson (2006) found that a model of mindful attention and awareness, secure attachment style, and social connectedness predicted well-being outcomes of perceived stress and sense of coherence. In addition, the authors found that social connectedness completely mediated the relationship of mindfulness to secure attachment style, while sense of coherence partially mediated the relationship of mindfulness to perceived stress.

The researchers concluded that the relationship of mindfulness to well-being may be affected by variables not taken into account by attention and awareness alone.

Among the questions the current study seeks to address are whether a multidimensional mindfulness scale predicts perspective taking and empathic concern components of empathy, and if so, to what extent perspective taking and empathic concern mediate the relationship of various mindfulness components to individual and interpersonal outcomes. The study involves administering measures of mindfulness, empathy, psychological distress, anxiety, and relationship satisfaction to a sample of college students. Methodology using multiple regression was expected to show that the combination of unique factors related to mindfulness from the Five Factor Mindfulness Questionnaire (FFMQ: Baer et al., 2006) would significantly predict Perspective Taking and Empathic Concern empathy variables, as measured by the Interpersonal Reactivity Inventory (IRI: Davis, 1980). A series of multiple regression procedures based on Baron and Kenny (1986) were used to test the hypothesis that coefficients between subscales from the four factor solution of the FFMQ and distress, anxiety, and relationship satisfaction would be significantly reduced with the addition of PT or EC to the models. The findings of the study are expected to add to the literature on interpersonal benefits of mindfulness, and give support for the usefulness of including variables related to mindfulness qualities in mindfulness research.

Chapter 2: Literature Review

The following chapter will be a review of the mindfulness literature, with an emphasis on the relationship of mindfulness mechanisms to variables recognized in Buddhist psychology as mindfulness qualities, empathy in particular. The chapter will commence with an introduction to mindfulness with an overview of its roots in Buddhist psychology. This will be followed by a discussion of theoretical and empirical literature on mindfulness in contemporary psychology, including evidence of psychotherapeutic benefits of mindfulness practice in individual and interpersonal treatment modalities. Next will be a review of the literature pertaining to mindfulness theoretical models, and research involving self-report mindfulness measures. The chapter will then turn to a discussion of the problem of inquiry related to the study, including an introduction of the IAA model of mindfulness, its relation to interpersonal variables such as empathy, and its usefulness for exploring mindfulness mechanisms. Previous studies relevant to empathy and other interpersonal variables in mindfulness, as well as study designs amenable for exploring IAA tenets will then be discussed. The section will conclude with a summary of the literature, followed by a research study proposal.

Mindfulness: An Overview

Mindfulness is generally defined as a state of consciousness where particular, purposeful focus and attention is on what is taking place in the present (Bishop et al., 2004; Brown & Ryan, 2003). At a more theoretical and philosophical level, mindfulness is defined as a non-judgmental and accepting orientation toward experience, both internal and external (Kabat-Zinn, 1990; Shapiro & Schwarz, 2000). It is a way of being most

commonly associated with meditative traditions, Theravada and Mahayana Buddhism in particular (Bankhart, Dockett, & Dudley-Grant, 2003; Chappell, 2003; Fulton & Siegel, 2005; Wallace & Shapiro, 2006). The term mindfulness is an English translation of the word *sati*, an ancient Pali word that connotes awareness, attention, and remembering (Germer, 2005).

Mindfulness is a reflection of the Buddhist view of the self and its relationship to others and the world around (Baer, 2003; Chappell, 2003; Fontana, 1987; Fulton & Siegel, 2005; Kabat-Zinn, 2003; Wallace & Shapiro, 2006; Walsh & Shapiro, 2006). In Buddhist psychology, mindfulness skills are considered necessary to decrease suffering, both in self and others (Chappell, 2003; Dudley-Grant, 2003). In Buddhism, suffering is believed not to come from the direct experience of pain or loss, but the manner in which one perceives and relates to the experience (Germer, 2005; Jason & Moritsugu, 2003). It is through the awareness that life phenomena are changeable and fluctuating, and that suffering is an inevitable part of existence, that one can cultivate an attitude of acceptance to negative thoughts and feelings (Luan Khong, 2003), which in turn increases one's capacity to fully engage with others, the world around, and life in general (Chappell, 2003).

The process by which such acceptance is developed and maintained is through *non-attachment*, or the refraining from dependency or over-identification with either pleasurable or painful thoughts, feelings, or sensations (Bankhart, Dockett, & Dudley-Grant, 2003). Mindfulness in Buddhist psychology is the application of mental skills aimed at reducing attachments of the self to particular thoughts, feelings, sensations, and

perceptions by maintaining moment-to-moment, non-judgmental awareness and attention (Jason & Moritsugu, 2003). It is through such tolerance or willingness to let things these internal events come and go in the moment that suffering can in fact be minimized (Germer, 2005).

Benefits traditionally ascribed to mindfulness are both psychological as well as interpersonal (Dockett, 2003), and include such characteristics as insight, wisdom, compassion, and equanimity (Baer, Smith, & Allen, 2004). Striving to maintain a focused, accepting awareness of the present is believed to cultivate an attitude of curiosity and engagement that spreads into all aspects of one's life, engendering a sense of connectedness and compassion toward others and the world around (Kabat-Zinn, 1990). Such an awareness of the interrelatedness of life is believed to be curative, not just for the practitioner, but interpersonally and for the society at large (Chappell, 2003).

Describing mindfulness as a miracle in its ability to transform experiences and actions, Nhat Hanh (1975; 1998) wrote of the "Seven Miracles of Mindfulness" that define various avenues by which attention, acceptance, and engagement can transform individual and interpersonal transactions. These are: (1) Full awareness and presence in the moment, (2) facilitating others' presence and awareness, (3) nourishing or supporting whatever or whomever is the object of your attention, (4) the desire to relieve suffering, (5) "looking deeply" (vipassana) into the nature of Self and others, and their interdependence, (6) understanding and awareness of the connections between individuals, their histories, environments, and us, and (7) transforming suffering into being (Fruzzetti & Iverson, 2004).

Traditional meditation practices continue to be the most widespread activities for cultivating mindfulness (Kabat-Zinn, 2003; Wallace & Shapiro, 2006; Walsh & Shapiro, 2006). While the specifics of meditation practices vary according to Buddhist lineages, traditions, and purpose, mindfulness meditations generally require the practitioner to remain still in a relaxed and attentive body posture, while continually and gently refocusing the mind to maintain a nonjudgmental awareness of internal and external experience (Kabat-Zinn, 1990). The practitioner allows him or herself to reside with calm acceptance in the present without trying to "fill" it with anything. Thoughts and feelings are allowed to come and go. If the mind becomes attached to any particular thought or feeling, it gently refocuses and 'lets go', allowing the stream of consciousness to be merely observed, free from judgment of its content.

Focused breathing and/or awareness of bodily sensations may also be performed to anchor attention during mindfulness meditation (Kabat-Zinn, 1990; Walsh & Shapiro, 2006). Verbal phrases or incantations are another form of attention foci, as in the case of the "lovingkindness" meditation (Carson, Carson, Gil & Baucom, 2004; Shapiro et al., 1998). Regardless of the specific anchoring activities, the process of continual, gentle refocusing in mindfulness meditation is repeated for a specified amount of time, which can be increased as practitioners become more skillful. Practitioners of traditional mindfulness training usually meditate regularly and dutifully, with the expectation that the ability to maintain present awareness and attention with all of its associated benefits will overflow into their daily lives (Kabat-Zinn, 1990).

Various forms of mindfulness training have increasingly appeared in psychotherapeutic treatments over the last few decades, reflecting a strong Western interest in the psychological benefits of mindfulness (Kumar, 2002; Wallace & Shapiro, 2006; Walsh & Shapiro, 2006). Indeed, the number of theoretical and empirical studies on psychotherapeutic treatments involving mindfulness is growing rapidly, and the general support for mindfulness as a viable avenue for both research and clinical applications in mental health is solid (Baer, 2003; Grossman, Niemann, Schmidt & Walach, 2003; Kabat-Zinn, 2003). As such, a growing number of health practitioners are claiming mindfulness may be worth promoting from a modern mental health standpoint (Hayes & Wilson, 2003). According to this paradigm, mindful awareness is thought to create 'space' between one's perception and response, allowing for more adaptive and flexible reactions to painful stimuli (Bishop et al., 2004). Instead of becoming attached to painful thoughts or sensations, which can lead to rumination, anxiety, or suppression, a non-judgmental acceptance of the thoughts and sensations can lead to increased self-regulation, reduced stress and anxiety, and less avoidant behaviors (Brown & Ryan, 2003; Hayes, Strosahl & Wilson, 2003).

Mindfulness-Based Stress Reduction, a stress-management program initially developed as a treatment option for chronic pain (MBSR: Kabat-Zinn, Lipworth,& Burney, 1985; Kabat-Zinn, 1990), has grown in utilization among hospitals and behavioral health institutions (Baer, 2003). MBSR is a structured, 8-week stress reduction program involving meditation and yoga that includes various experiential and didactic activities with a mindfulness focus. MBSR has shown effectiveness in reducing

psychological morbidity associated with chronic medical illnesses such as fibromyalgia and cancer, reducing mood and anxiety disorder symptoms, and increasing emotional well-being and stress management in non-clinical samples (Bishop, 2002; Bishop et al., 2004; Carlson, Speca, Patel & Goodey, 2003; Chang, Palesh, Caldwell, Glasgow, Abramson, & Luskin, et al., 2004; Grossman, Niemann, Schmidt, & Walach, 2004; Kabat-Zinn, 2003; Kabat-Zinn, Massion, Kristeller, Peterson, Fletcher, & Pbert, et al.,1992; Weissbecker, Salmon, Studts, Floyd, Dedert, & Sephton, 2002).

A number of contemporary psychotherapy approaches involving mindfulness have also been developed in recent years (Baer, 2003; Bishop et al., 2004; Hayes & Wilson, 2003; Linehan, Tutek, Heard, & Armstrong, 1994; Teasdale, Moore, Hayhurst, Pope, Williams, & Segal, 2002). Mindfulness-Based Cognitive Therapy (MBCT; Teasdale et al., 2002) holds that building attentional control through mindfulness meditation could help prevent relapse of major depressive episodes (Baer, 2003), with the assumption that individuals who have experienced depressive episodes are more vulnerable to reactivation of depressive thinking by subsequent dysphoric states (Segal, Teasdale, & Williams, 2004). Linehan (1993) developed Dialectical Behavior Therapy (DBT) for patients with Borderline Personality Disorder (BPD), reasoning that mindfulness skills and Zen dialectic concepts could encourage BPD patients to accept themselves and their histories as they are, while at the same time allowing them to work extensively on changing self-destructive and suicidal behaviors for more healthy alternatives (Baer, 2003; Robins, Schmidt, & Linehan, 2004). Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999) holds that dysfunctional

behavioral patterns are based on verbal formulations of events and the relations between them. ACT clients are encouraged to see their thoughts, emotions, and perceptions of problems as separate from themselves in order to cultivate awareness and acceptance, which in turn creates 'space' to change their relationships to the thoughts, emotions, and perceptions (Baer, 2003). Outcome studies on these approaches show promise in the treatment of areas such as anxiety disorders, depression, substance abuse, smoking cessation, and suicidality (Baer, 2003; Hayes & Wilson, 2003; Linehan et al., 1994; Segal, Teasdale, & Williams, 2004; Teasdale et al., 2002).

Mindfulness-based interventions for relationships have also recently been developed, reflecting a growing interest in interpersonal applications of mindfulness (Carson, Carson, Gil, & Baucom, 2004; Christensen; 2004; Fruzzeti & Iverson, 2005; Jacobsen, Christensen, Prince, Cordova, & Eldridge, 2000; Linehan, 1993; Surrey, 2005). For example, Linehan's Dialectical Behavior Therapy (DBT: 1993) includes an interpersonal focus, as interpersonal dysfunction and chaos tend to go hand in hand with Borderline Personality Disorder. Relational-Cultural Therapy (RCT) is a psychotherapy approach for individuals and couples that views psychological suffering as a result of being cut off or prevented from the ability to engage in mutually authentic, empathic, and empowering relationships (Surrey, 2005). Mindfulness-Based Relationship Enhancement (MBRE; Carson, Carson, Gil, & Baucom, 2004) modifies the basic structure of Mindfulness-Based Stress Reduction (MBSR: Kabat-Zinn, Lipworth & Burney, 1985) specifically for the enrichment of relationships of healthy-functioning couples.

Interventions that focus on cultivating mindful awareness and acceptance in interpersonal realms, such as self and other emotional acceptance, empathy, and accurate identification of self and partner emotions and reactions, may be particularly amenable for treating dysfunctional and traditionally treatment resistant partnerships (Christensen; 2004; Fruzzetti & Iverson, 2005; Jacobsen, Christensen, Prince, Cordova, & Eldridge, 2000). Integrative Behavioral Couple Therapy (IBCT) is a mindfulness-based couples' treatment program that has shown promise in reducing systemic symptoms often considered treatment resistant in traditional behavioral couples' therapy by focusing on emotional acceptance of partners' behaviors (Christensen; 2004; Jacobsen, Christensen, Prince, Cordova, & Eldridge, 2000). Fruzzetti and Iverson (2005) suggested a mindfulness-based transactional model of treatment for couples where one or both persons are suffering from psychopathology. Based on the assumption that individuals must first learn to accept their own emotional experiences before understanding another's, the treatment model includes mindfulness-based exercises aimed at increasing nonjudgmental awareness of one's own emotional reactivity, obtaining accurate identification of emotions and reactions, and self-validation.

In general, the research on mindfulness-based treatment programs suggests that mindfulness concepts can be integrated with psychotherapeutic treatment models within a wide range of treatment foci, from general wellness all the way to severely dysfunctional behaviors and clinical psychological disorders (Baer, 2003; Hayes, Follette, & Linehan, 2004; Kabat-Zinn, 2003; Zvolendky, Feldner, Leen-Feldner, & Yartz, 2005), and in both individual and interpersonal contexts (Carson, Carson, Gil, & Baucom, 2004;

Christensen; 2004; Fruzzeti & Iverson, 2005; Jacobsen, Christensen, Prince, Cordova, & Eldridge, 2000; Linehan, 1993; Surrey, 2005). And while the target outcomes among the various programs, as well as the manner in which they are approached often differ substantially, they all more or less echo traditional views on mindfulness as a desirable orientation characterized by a purposeful focused attention or awareness and accepting orientation toward experience (Kabat-Zinn, 2003).

Mindfulness: Tradition Versus Contemporary

The rise in popularity of theoretical and clinical avenues in mindfulness is not without some debate regarding the appropriateness of promoting mindfulness activities removed, in a sense, from their traditional spiritual or religious roots (Baer, 2003; Shapiro, Carlson, Astin & Freedman, 2006). Whereas historically practitioners of mindfulness training have followed mostly Buddhism closely, these treatment programs focus specifically on wellness within a clinical or mental health paradigm, and imply no specific spiritual or religious adherence or identification (Kabat-Zinn, 2003). Indeed, a number of authors have questioned whether or not approaching mindfulness activities from purely secular and/or clinical contexts puts the definition of mindfulness at risk of losing some of its richness and purpose (Shapiro et al., 2006).

This debate is highlighted by the question of the actual role and/or necessity of meditation for cultivating mindfulness. A number of researchers argue that behaviors associated with mindfulness may occur naturally in the population with or without experience with formal meditation (Baer, Smith, & Allen, 2003; Baer Smith, Hopkins, Krietemeyer, & Toney, 2006; Brown & Ryan, 2003; 2004). Research involving self-

report measures of mindfulness with participants with little or no formal meditation experience may give some support to these claims. Furthermore, the aforementioned treatment programs differ widely in their approach to meditation, both in terms of definition and actual utilization (Kabat-Zinn, 2003; Wallace & Shapiro, 2006; Walsh & Shapiro, 2006), adding more fuel to this debate.

One traditional aspect that that may have been downplayed as mindfulness becomes more integrated within Western psychology is its interpersonal implications. The empirical and clinical focus of mindfulness in many ways continues to reflect the Western approach to well-being that is largely individualistic and symptom-oriented, as opposed to integrative and systemic (Shapiro & Schwartz, 2000). By reducing mindfulness to its fundamental components, as it were, the overarching purpose of cultivating compassion for and awareness of interdependence of all beings tends to get upstaged by an emphasis on symptom reduction (Shapiro et al., 2006).

This chapter has thus far touched briefly on the history of mindfulness within Buddhist psychology to its current place in contemporary psychological research. That components and outcomes traditionally associated with mindfulness are appropriate for contemporary health interventions is well supported by a growing amount of literature (Baer, 2003; Grossman, Niemann, Schmidt, & Walach, 2003; Kabat-Zinn, 2003; Shapiro et al, 2006). Nevertheless, questions remain with respect to its utilization in contexts removed from traditional Buddhist practices. Until recently, mindfulness has existed within a spiritual and philosophical framework that espouses connection and compassion as necessary for cultivating well-being individually and interpersonally (Shapiro et al.,

2006). As mindfulness-based interventions and concepts continue to increase in popularity and use it becomes more necessary to address this question, with the goal of highlighting contextual and interpersonal aspects of mindfulness that may be necessary for its effectiveness on outcomes.

Theoretical Models of Mindfulness

There has been an increase in theoretical research on mindfulness in recent years, particularly in terms of exploring and operationalizing its proposed structure and components (Shapiro, Carlson, Astin, & Freedman, 2006; Wallace & Shapiro, 2006; Walsh & Shapiro, 2006). Earlier in the decade, one group of researchers convened for the purpose of proposing a model of mindfulness (Bishop, Lau, Shapiro, Carlson, Anderson, Carmody, Segal, Abbey, Speca, Velting, & Devins, 2004), and published the results of the meeting. In the report the researchers suggested a two component construct, involving on one hand the self-regulation of attention so that it remains focused on immediate experience, and a commitment to maintain an attitude of curiosity and acceptance *toward* experience on the other.

The authors argued that sustaining attention through mindfulness practice fosters a non-elaborative awareness of thoughts, feelings, and emotions as they arise (Bishop et al., 2004). According to the authors, mindfulness involves a direct experience of events in the mind and body rather than thoughts *about* the experience. Furthermore, the acceptance component of mindfulness involves a conscious decision to abandon efforts to mentally change the experience, and instead allow current thoughts, feelings, and sensations to be as they are. The researchers also distinguished observation of experience

from elaboration of what is being observed. According to the authors, continual refocusing on the current experience helps to inhibit "secondary elaborative processing", which can lead to ruminative thought streams. Based on the notion that their model of mindfulness would require both control of cognitive processes and monitoring of stream of consciousness, the researchers suggested that mindfulness is a *metacognitive* skill.

In a critique of the two component model, Brown and Ryan (2004) argued that the term metacognitive may be misleading. Mindfulness, they argue, is less a manner of cognition, and more a global quality of consciousness. According to the researchers, metacognition implies an operation within the realm of thought – a way of monitoring cognitive activities to ensure that cognitive goals are met. Mindfulness differs from metacognition in that it operates upon thoughts and emotions rather than within them. In this vein, they suggest a model of mindfulness where focused attention and awareness are salient, and where acceptance, and any other cognitive component commonly attributed to mindfulness, is subsumed under.

That attention and awareness play a major role in mindfulness is highlighted in research by Brown and Ryan (2003; 2004). The authors developed the Mindful Attention and Awareness Scale (MAAS) in order to assess focus and awareness in day-to-day activities in general populations, based on the hypothesis that mindfulness would contribute to well-being and happiness by adding clarity and vividness to experience. Items on the MAAS reflect the presence or absence of attention and awareness of what is occurring in the present. The researchers found that high MAAS scorers were more in tune with their emotional states, more likely to fulfill basic psychological states, and less

likely to be self-conscious, socially anxious, and ruminative. In another study, higher MAAS scores were found to be associated with lower mood disturbance and stress symptoms in a sample of cancer outpatient participants in an MBSR program (Carlson & Brown, 2005).

Worthy of note is the fact that the mindfulness model put forth by Brown and Ryan (2003; 2004) differs somewhat from previous models with regards to the role of acceptance. The authors argued that one cannot give full attention and focus to something without being at the same time accepting of the experience. Thus, in their model acceptance is more or less subsumed under the global process of attention and awareness. Indeed, in an early version of the MAAS they included items pertaining to acceptance, but found that the awareness items generally correlated higher with outcomes than the acceptance items. As a result they dropped the acceptance factor, making the MAAS a one factor solution for attention and awareness (2004).

More recently, another group of researchers found evidence for a multi-factor model of mindfulness (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). The researchers combined various measures related to mindfulness and utilized factor analysis to delineate components of mindfulness, using items from each factor to create the Five Factor Mindfulness Questionnaire (FFMQ). Initially, five mindfulness factors appeared, which the authors titled Act With Awareness, Nonjudging, Nonreactivity, Describe, and Observe. Act With Awareness is derived from items related to attention and awareness that denote non-distraction or focused concentration (items from the MAAS all loaded on the Act With Awareness factor). Nonjudging refers to items related to the tendency to

evaluate or elaborate on one's feelings or thoughts, mainly in a negative fashion. Nonreactivity refers to items related to one's ability to perceive distressful feelings and emotions without immediate, automatic reaction - the ability to "step back", as it were. Describe refers to the ability for one to describe and put adequate labels to thoughts or feelings. Observe refers to items regarding attending to or noticing specific sensations, perceptions, thoughts, or feelings.

The researchers then gave the scale to a large sample, and found that the five factor structure fit the data among participants with formal meditation experience, but among participants without meditation experience a model that did not include the Observe factor fit significantly better (Baer et al., 2006). Furthermore, when a measure of behavioral symptoms was regressed on the remaining four factors, only Act With Awareness, Nonjudging, and Nonreactivity contributed significant unique variation on the outcome. The authors concluded the results confirm that attention and/or awareness, in addition to acceptance, are salient components to mindfulness.

The more recent FFMQ study by Baer et al. (2004; 2006) sheds additional light on the role of acceptance within the mindfulness construct that may challenge Brown and Ryan (2003; 2004) to some degree. Aside from the basic advantage of including many more items from multiple inventories in the factor analyses, Baer et al's (2006) study included statistical methodology that takes into account latent variables. Interestingly, nonreactivity was not initially theorized by any of the writers of the inventories used in the study, but appeared as a result of the latent variable modeling. Nonjudging, had appeared in the earlier development of Baer et al.'s (2004) Kentucky Inventory of

Mindfulness Skills (KIMS), based largely on concepts from Linehan's DBT (1993). The researchers claim that the results of the later study suggest that the combination of these two factors may be an effective way to operationalize acceptance (Baer et al., 2006). Moreover, the results may give support to earlier claims that acceptance may be best conceptualized as an interrelated, yet unique mindfulness component.

Previous research on mindfulness mechanisms and components suggests that mindfulness is associated with moment-to-moment attention and awareness, coupled with an accepting or non-judging orientation toward internal experience (Baer et al., 2006; Bishop et al., 2004; Brown & Ryan, 2004). And while there appears to a general consensus on this operationalization, there remains some debate about the role of specific mechanisms in the overall mindfulness construct, as well as their relatedness to each other. The following section will look at recent theoretical research on mindfulness that may shed additional light on mindfulness mechanisms. This research suggests that confusion may have resulted from attempting to separate the mindfulness construct from its historical and spiritual roots, and more or less ignoring the context in which mindfulness occurs as a mechanism in and of itself.

Mindfulness Mechanisms

Shapiro et al. (2006) recently argued that while previous research validates the efficacy of mindfulness-based interventions, the models themselves do not necessarily address how or why mindfulness works. According to the authors, taking into account three contextual factors – intent, attention, and attitude - is crucial for understanding the process of mindfulness as a whole. They note that mindfulness traditionally was not

meant solely for attention or awareness, but for well-being, enlightenment, and compassion for all beings. As a result of the Western psychology inclination to extract the essence of mindfulness practice from its Buddhist roots the intention for which mindfulness occurs has more or less been overlooked in contemporary definitions (Shapiro & Schwartz, 2000).

The authors suggest that re-introducing intention to the model allows mindfulness to be viewed through a systemic framework, answering "why" and "how" one mindfully attends through a larger, more contextual perspective than that of most self-regulation theories involving aspects of mindfulness (Shapiro & Schwartz, 2000). In contrast to the interrelated and systemic view associated with mindfulness within Buddhist psychology, contemporary self-regulations theories are often merely symptom-oriented, a focus that is at risk of ignoring the well-being of the larger system (Shapiro et al., 2006). The authors give the example that a person may practice meditation for self-regulation, with the sole intention of becoming aware of blood pressure, in order to lower it (Shapiro & Schwartz, 2000). On the other hand, the intent to lower blood pressure in a systemic perspective should evolve toward promotion of well-being of the entire circulatory system, and eventually for the entire being. Thus, the role of intention in mindfulness is to become aware of the manner in which the self is embedded in larger systems, including not only mind/body mechanisms, but interpersonal relationships, community, and the world at large.

The authors proposed a three axiom model of mindfulness (IAA): (1) Intention (purpose for mindfulness), (2) Attention, and, (3) Attitude (mindfulness qualities, e.g.,

acceptance, compassion, etc…) (Schwartz, Russek, Shapiro & Harada, 1999; Shapiro, Carlson, Astin, & Freedman, 2006; Shapiro & Schwartz, 2000). The authors suggest the IAA axioms are not separate stages, but interwoven aspects of a cyclic process, occurring simultaneously, moment to moment (Shapiro et al., 2006). According to the authors, intentional mindfulness leads to a significant shift of perspective, which they termed "reperceiving", or the capacity to dispassionately observe or witness the contents of one's own consciousness. They argue that such a shift in perspective can lead to mechanisms that contribute to the positive outcomes commonly associated with mindfulness, including self-regulation and self-management; emotional, cognitive, and behavioral flexibility; values clarification; and exposure. IAA is considered inherent throughout these mechanisms, which can be seen as outcomes or potential mechanisms for other outcomes in a non-linear fashion.

Conceptualizing mindfulness in a systemic manner potentially expands the model to include variables contextually related to core mindfulness components, such as attitudinal and interpersonal variables. Thus, the IAA model of mindfulness may be beneficial for integrating previous theoretical research on mindfulness, while allowing for the exploration of variables traditionally related to mindfulness but not included in models focusing primarily on self-regulation. The following subsections will attempt to summarize current definitions of mindfulness mechanisms within a framework suggested by the IAA model, and open a dialogue regarding the inclusion of interpersonal variables in mindfulness research that will guide the remainder of the chapter and subsequent study.

Intention

Regarding the salience of intention to mindfulness in Buddhist psychology, Olendski (2005) argued that in contrast to attention or awareness, which primarily contribute to the knowledge of what is going on internally or externally, intention is more about what one is doing about it. The author goes on to write that intention manifests as action when physiological activities are initiated, either consciously or unconsciously, by an individual's choice to act one way or another. Intention then becomes an active and creative function that impacts how the present experience is organized and presented by the mind. More specifically, intention can be the factor that responds to experience by engaging in it, or conversely, avoidance or rejection. Indeed, intention can have a subtle, passive influence on personality and disposition over time, as one is continually shaped by his or her previous actions and the patterns of responding to outcomes.

Attention

Remaining attentive to what is taking place in the present moment, by definition, is being mindful (Brown & Ryan, 2004). However, it is also clear that the manner in which one pays attention to the moment is important. Brown and Ryan (2003; 2004) define attention as the deliberate focusing toward specific aspects within awareness, and suggest that the opposite of mindfulness could be 'autopilot' behaviors, where both attention and awareness of a particular activity is less than fully engaged. Kabat-Zinn (1990) clarifies attention and awareness in mindfulness as a novel or non-perfunctory focus on the moment. Bishop et al. (2004) include *observing* and *vigilance* to help define the form and quality of attention in mindfulness. Furthermore, sustained attention, they

add, is the ability to maintain moment-to-moment awareness over prolonged periods of time, a goal of formal meditation practices.

These definitions all imply a manner of voluntary and purposeful attention qualitatively different than attention as defined merely sensorically or biologically (Csikszentmihalyi, 1990; 1997; Damasio, 1999). Yet, they are limited in their ability to explain which variables may be involved in making attention purposeful in a particular context, or even why they are involved. Nor can they necessarily explain differential effects they may have on mindfulness processes and outcomes. By making intention explicit the IAA model allows the inclusion, and therefore the exploration, of factors related to the context and purpose for cultivating mindful attention, ultimately giving more information about the manner in which mindfulness mechanisms work. Shapiro et al. (2006) note that it is Attitude in the IAA model that refers to "how" one attends in mindfulness. The Attitude axiom includes acceptance and related constructs, but also expands the model to include external variables that impact attention, as well.

Attitude

Previous models have highlighted an attitude of acceptance as salient to the overall mindfulness construct. According to Hayes, Strosahl, and Wilson, authors of *Acceptance and Commitment Therapy; An Experiential Approach* (1999), the concept of acceptance within mindfulness is the alternative to experiential avoidance. Psychologically, acceptance is an active taking in of an event or situation without trying to change the associative internal experience. It is a willingness to let things be within

the moment a thought or sensation, desirable or undesirable, comes into awareness (Germer, 2005).

A non-elaborative and non-judgmental approach to attention is often associated with acceptance in mindfulness models. Bishop et al. (2004) argue that releasing attention from elaborative thinking allows for more resources to be made available to process information related to experience. A mindful orientation to experience, they assert, involves a more direct, fresh observation unfiltered by beliefs, assumptions, or expectations. Kabat-Zinn (1990) wrote that a non-judging attitude assumes a stance of impartial witness to one's own experience. The pervasiveness of judgmental thought is underscored by Kabat-Zinn, who notes that through increased mindfulness we may become aware that we are constantly generating judgments about our experiences (1990). Indeed, it can be said that everything we see is labeled and categorized, as these are basic functions of verbal language (see Hayes, Strosahl & Wilson, 1999).

In addition to non-judgment acceptance requires a sort of equanimity in relation to awareness – a non-reactive orientation toward inner experience. Olendzki (2005) defined equanimity as it relates to mindfulness as an attentive yet dispassionate attitude of mind capable of embracing both pain and pleasure, without being driven by them into action motivated by desire to either minimize or indulge in the experience. Equanimity, according to Olendzki is in opposition to "clinging" behaviors that are indicative of a sort of conditioned response, aimed at satisfying a desire, escaping pain, or avoiding otherwise uncomfortable feelings or sensations.

While the IAA model also takes into account the orientation toward internal experience as attitudinal, it expands on previous models by including the context that guides attitude (Shapiro & Schwartz, 2000). Current models appear to focus primarily on attention and acceptance from an individual self-regulation standpoint, while traditional mindfulness models included concepts that could be considered emotional, spiritual, and/or interpersonal (Shapiro et al., 2006). For example, in *Full Catastrophe Living* (1990), Kabat-Zinn noted examples of attitudinal qualities associated with mindfulness including patience, openness, trust, nonstriving, and letting go. Shapiro and Schwartz (2000) later elaborated, adding gratitude, gentleness, generosity, empathy, and lovingkindness as affective "heart" qualities of mindfulness.

As mentioned previously, Shapiro et al. (2006) argued that the traditional intent for mindfulness included cultivating compassion for all beings – a theme echoed throughout Buddhist psychology literature, and for which specific mindfulness skills and activities often give focus. Thus, attitudinal qualities such as "lovingkindness", compassion, and empathy make attention more contextual and purposeful than when focusing primarily on cognitive self-regulation skills associated with mindfulness. The likely results of such purposeful mindfulness are processes and outcomes that extend beyond self-regulation, to include one's relationships to others and the world around.

Mindfulness in Relationships

That interpersonal variables such as compassion and empathy are commonly associated with mindfulness suggests that cultivating mindfulness may be beneficial for interpersonal well-being. Recent research utilizing self-report mindfulness measures in

studies involving romantic relationships may give support for this claim (Barnes, Brown, Krusemark, Campbell, & Rogge, 2007; Burpee & Lange, 2005; Wachs & Cordova, 2007). A number of these studies are briefly reviewed in this section, for the purpose of establishing a link between mindfulness and interpersonal well-being in which variables such as empathy could play a role.

Burpee and Langer (2005) argued that mindfulness could be related to marital satisfaction. The authors defined mindfulness as the process of actively drawing novel distinctions, resulting in more sensitivity to context and heightened awareness of alternative perspectives. Using a scale they developed based on this premise the researchers found that mindfulness significantly predicted marital satisfaction above and beyond perceived partner similarity, such that only mindfulness contributed significantly to the outcome when satisfaction was regressed on mindfulness and similarity simultaneously. The authors concluded that flexibility and open-mindedness cultivated by mindfulness may help foster positive and satisfying marital relationships.

Barnes, Brown, Krusemark, Campbell, and Rogge (2007) also predicted that mindfulness would be positively associated with relationship satisfaction, as well as two indicators of relationship well-being, namely self-control and accommodation, or the ability to inhibit tendencies to act destructively in a relationship, and instead respond constructively. A preliminary study utilizing a short longitudinal design found MAAS scores predicted the relationship satisfaction, self-control, and accommodation measure scores at both baseline and posttest periods, with the exception of accommodation at Time 2.

The authors then conducted a study involving conflict-induction scenarios with couples (Barnes, Brown, Krusemark, Campbell, and Rogge, 2007), and hypothesized that mindfulness would be associated with lower anxiety and anger before and after the scenarios, as well as predict attention and awareness during the discussions. MAAS scores were again found to predict relationship satisfaction, as well as pre and post-conflict anxiety and anger. Then, utilizing a multi-level hierarchal modeling approach the authors found that pre-intervention levels of both anxiety and anger-hostility were found to mediate the relationships, such that the path coefficients between mindfulness and post-discussion anxiety and anger-hostility levels were non-significant when controlling for pre-intervention levels. The authors argued that the relationship between mindfulness and post-conflict anxiety and anger-hostility was explained by the fact that those higher in mindfulness had lower pre-conflict levels. In addition, the MLM procedure found that mindfulness during the discussion, or "state" mindfulness, predicted changes in scores on measures of love and commitment, respect, and support following the discussion, and was negatively related to verbal aggression, negativity, and conflict.

Results from these studies highlight interpersonal aspects not typically measured in mindfulness research, e.g., relationship satisfaction. Given the traditional intention of mindfulness for cultivating compassion and connectedness, however, it is likely that qualities associated with mindfulness may be particularly salient for enhancing such interpersonal variables. The following section will look more in depth at the relationship of mindfulness to interpersonal well-being, with a particular focus on compassion and empathy.

Mindfulness, Empathy, and Compassion

Buddhist psychology emphasizes the role of compassion as therapeutic to self, others, and relationships (Jason & Moritgusu, 2003), and is defined as the awareness and feeling for the suffering of others (Surrey, 2005). According to Bankhart et al. (2003), compassion in Buddhism relates to the subversion of devotion to preserving a separate and isolated "I", and is the heartfelt aspiration that all living things can experience relief from the harshness of living. And as compassion entails knowledge and sense of connection with the suffering of others, it also generally implies a desire or motivation toward action to relieve it (Cassell, 2002).

Luan Khong (2003) wrote that comprehending the interrelatedness of everything leads to compassion. Although differences may be subtle, this perhaps separates compassion from pity or sympathy, in that the recognition of the interrelatedness of all beings fosters the knowledge that all are vulnerable to suffering. Yet, like sympathy, compassion requires not just the awareness, but an empathic connection with others' experiences and a desire to relieve their suffering (Wispe, 1991). Clarifying this point further, Luan Khong (2003) wrote that "out of this sense of empathy and awareness of the organic unity of the world we develop a sense of caring and responsibility that is extended spontaneously to all beings." Thus, empathic responses elicited by the perceived welfare of someone else might include such emotions as sympathy, compassion, softheartedness, tenderness, or other related feelings (Batson, Ahmad, Lishner, and Tsang, 2002).

Indeed, the ability to empathize may be a key component in developing compassion in mindfulness. Empathy appears in Buddhist psychology literature as a natural extension of compassion that is cultivated by traditional mindfulness practice (Fulton, 2005). Morgan and Morgan (2005) argue that empathy is a cohesive factor, connecting us to our own experiences as much as those of others. According to the authors, the more we are aware and accept the impermanence of existence and the inevitability of suffering and limitations in our own lives, the more we are in a position to appreciate and tolerate the experiences of others. And while compassion might refer to the awareness and feeling for the suffering of others, empathy entails all the feelings and perceptions of others in an enlightened awareness and connection of the interdependence of self and other (Morgan & Morgan, 2005).

In laying the ground work for IAA, Shapiro and Schwartz (2000) wrote that the goal of an intentional systemic construct of mindfulness is to incorporate into self-regulation models affective qualities along with cognitive qualities such as non-judging. The authors included empathy as a mindfulness quality, a variable arguably attuned to the affective component of mindfulness practice. And like other mindfulness qualities, mindfulness from a systemic perspective implies that empathy may originate with kindness and compassion toward the self, manifesting with awareness outward toward others, the community, and eventually all beings.

Regarding empathy as a mindfulness quality, Shapiro and Schwartz (2000) point to earlier psychotherapy outcome research, which suggests that both empathy and acceptance are the most significant predictors of success in psychotherapy across a range

of clinical populations (Miller, Benefield, & Tonigan, 1993; Miller & Baca, 1994). The authors suggest that the implication of applying intentional systemic mindfulness to psychotherapy would be the providing for a compassionate context for self-exploration that can lead to greater insight and psychological well-being (Shapiro & Schwartz, 2000). Intentional systemic mindfulness therefore provides a model where empathic responding can become an agent of change in human encounters.

The IAA model can also help explain how empathy can be related to mindfulness processes. Shapiro et al. (2006) suggested empathy as a mindfulness attitudinal quality. However, it is also possible that empathy includes *both* attention and affective components related to mindfulness processes. That is, empathy presumes an ability to take another's perspective and feel concern for others, which in turn implies a stance toward one's own thoughts and emotions deemed benefited by mindfulness (Block-Lerner, Adair, Plumb, Rhatigan, and Orsillo, 2007). Block-Lerner et al. (2007) wrote that both perspective taking and empathic concern:

> … involve an awareness and understanding of how another is reacting to his or her experiences. PT involves the nonegocentric ability to adopt another's psychological point of view (cognitively "putting one's self in another's shoes"), allowing for a better anticipation of the behavior and reactions of that person. This capability puts one at a greater advantage in the development of deeper interpersonal relationships. Similarly, feeling sympathy for another, central to EC, fosters helping behavior and may increase dialog, both of which could contribute to deeper, more meaningful relationships. (p. 506)

To better establish how empathy components may be related to mindfulness, a more in depth overview of the empathy literature is warranted. The following section will summarize the literature, focusing particularly on perspective taking and empathic concern as components related to mindful attention and attitude axioms.

Research on Empathy

Theories on empathy appeared early on in modern psychology. In 1903, German psychologist Theodore Lipps conceptualized about the phenomenon of being "one in feeling" (Omdahl, 1995). Soon after the use of the word empathy became prevalent as an English translation of the German word *einfuhlung*, a combination of 'one' and 'feeling' (Stotland, Mathews, Sherman, Hansson, & Richardson, 1978). Carl Rogers, the person perhaps most commonly associated with the concept of empathy within modern psychology, defined empathy primarily as "entering the private perceptual world of the other and becoming thoroughly at home in it…being sensitive, moment to moment, to the changing felt meanings which flow in this other person…" (*as cited in* Sharf, 2000, p. 224).

Research confirms a strong association between empathic responding and positive aspects of interpersonal functioning (Batson, Ahmad, Lishner, & Tsang, 2002; Stotland, Mathews, Sherman, Hansson, & Richardson, 1978; Wispe, 1991). Studies have associated empathy with prosocial behaviors such as altruistic responding and a decreased likelihood of aggression and abuse (Kaplan & Arbuthnot, 1985; Mehrabian, Young & Sato, 1988; Omdahl, 1995). In intimate relationships empathy has also been shown to be associated with contributing to more open and effective communication

(Franzoi, Davis & Young, 1985), a more egalitarian relationship overall (Scuka, 2005), and increased partner relationship satisfaction (Cramer, 2003; Davis & Oathout, 1987). Empathy has also been shown to be related to individual well-being, including psychological wellness (Shanafelt et al., 2005), self-awareness (Beitel, Ferrer & Cecero, 2004), positive emotions (Davis, Hull, Young & Warren, 1987), emotion regulation (Davis & Oathout, 1987; Scuka, 2005), and willingness to engage in emotionally salient situations (Davis, Mitchell, Hall, Lothert, Snapp, & Meyer, 1999).

Efforts to conceptualize and measure empathy have yielded various inventories. One measure, the Interpersonal Reactivity Inventory (IRI: Davis, 1980), is based on a four-factor model of empathy. Davis created the IRI to measure individual differences in empathy according to one's tendency to transpose oneself imaginatively into the action of drama or literature (Fantasy), the ability to adopt different points of view in interpersonal scenarios (Perspective Taking), the tendency to experience feelings of warmth and concern for others (Empathic Concern), and the level of feelings of discomfort and anxiety when witnessing others' emotional experiences (Personal Distress). Subsequent studies have found empathic concern and perspective taking appear to best represent the division between cognitive and emotional components of empathy (Davis, 1983; Davis et al., 1987). Between the four scales, empathic concern and perspective taking had the highest positive intercorrelations, suggesting that these components are interrelated to some degree (Davis, 1983). Perspective taking was found to be negatively related to measures of shyness and loneliness. Empathic concern was found to be strongly positively correlated with sensitivity to others' feelings, and was associated with altruistic

responding. Both scales were found to be negatively related to interpersonal styles that are boastful or dictatorial in nature.

In a later study Davis et al. (1999) hypothesized that dispositional empathy would influence an individual's willingness to enter potential helping situations by affecting expectations regarding the emotional responses likely to occur in those situations. The authors suggested that both empathic concern and personal distress are affective components of empathy, and may influence anticipated satisfaction and willingness in contrasting ways. In a series of studies with the IRI Empathic Concern and Personal Distress subscales, the researchers asked study respondents to estimate how much sympathy, distress, and satisfaction they would anticipate experiencing in certain volunteer conditions expected to be predominated by one of each of the three reactions. Respondents also rated how willing they would be to volunteer for each scenario. Using path analyses, the authors suggested a model where the direct relationships of EC to volunteer preference was partially mediated by anticipated sympathy, while the relationship of PD to preference was mediated by anticipated distress. Moreover, anticipated sympathy was positively associated with satisfaction, while distress was negatively associated with satisfaction. However, anticipated satisfaction was positively related to volunteer preference for both sympathy and distress. The authors concluded that their model supports the view that the decision to enter helping situations is at least to some degree a strategic choice based on a rational consideration of the affect likely to result, and that dispositional empathy may be an important influence on such decisions.

Results from a more recent IRI study suggest that perspective taking may produce a merging of self and other through an increased activation of self-related knowledge, which in turn is used in creating a mental representation of the other (Davis et al., 2004). Participants were asked to imagine themselves in the place of individuals in anxiety-producing situations versus a control group instructed merely to observe. A third group was instructed to imagine the target's point of view with no self-reference. The researchers found that both the imagine-self and the imagine-target groups reported more self-related thoughts than the observe group. Furthermore, they noted that the observe instructions seemed to cause a distancing of the participants views from that of the targets'.

Perception of partner empathy has been shown to be related to relationship satisfaction in other studies. Davis and Oathout (1987) found that Perspective Taking and Empathic Concern were both significant predictors of specific relationship characteristics, including positive outlook and warmth, which in turn predicted partners' perception of these characteristics (Davis & Oathout, 1987). Furthermore, partners' perceptions of the characteristics correlated with partners' scores on a measure of relationship satisfaction. Cramer (2003) correlated measures related to three of Rogers' Core Facilitative Conditions (empathy; congruence; unconditional regard) with measures of negative conflict and relationship satisfaction. Items related to the conditions were from a larger relationship inventory that reflects one's perception of partner empathy, congruence, and level of regard. Of the three facilitative conditions, perceptions of empathy and level of regard were found to be the most significant predictors of

relationship satisfaction. Negative conflict was highly negatively correlated with relationship satisfaction, but was not a significant predictor when combined with empathy and level of regard in the regression model. It was argued that the relationship of negative conflict to relationship satisfaction is mediated by partner empathy and level of regard. This implies that reports of high partner empathy and positive regard may be associated with increased resilience to the effects of negative relationship conflict on relationship satisfaction.

There is some evidence to suggest empathy may be related to individual well-being. This makes theoretical sense, given the salience of interpersonal interactions to psychological functioning (Baumeister, Smart, & Boden, 1996; Lee, Draper & Lee, 2001), and the strong association between self and other well-being in Buddhist psychology (Jason & Moritsugu, 2003; Neff, 2003). Davis (1983) found that Perspective Taking and Empathic Concern were moderately positively correlated with measures of self-esteem. However, this only held true for females on Empathic Concern. Shanafelt et al. (2005) found that among medical residents, a population notorious for undergoing extreme stress, a group that reported high mental well-being scored significantly higher on the IRI Perspective Taking subscale than residents who reported lower mental well-being.

Research on empathy suggests that it can be conceptualized as having both emotional and cognitive components (Davis, 1980; 1983). Furthermore, individuals may draw on their self-perceptions or experiences when responding empathetically (Davis et al., 2004). Empathy can be a predictor of individuals' willingness to help others,

particularly when the anticipated emotional reactions to helping are perceived as satisfying (Davis et al., 1999). The link between empathy and individual well-being is not well-established to date, but remains intriguing nonetheless. As it is, the actual manner in which empathic responding affects individual well-being variables, if it does at all, has yet to be found. And while research has shown a connection between empathy and relationship satisfaction, these studies have focused solely on perceptions of partner empathy. In other words, individuals' perceptions of empathic reactions from their partners are associated with reports of higher satisfaction in relationships. It remains to be seen if empathic responding toward others has a reciprocal effect of higher relationship satisfaction in the emphathizer.

Previous Research on Empathy and Mindfulness

The number of studies on empathy as it relates to mindfulness is limited but growing, as evidenced by a number of articles recently published in the prestigious Journal of Marriage and Family Therapy, which devoted a special issue to mindfulness (AAMFT, 2007). One article in particular focused on presenting a case for mindfulness and empathy by drawing on theory from Davis (1980), and cited results from a preliminary study (Block-Lerner, Adair, Plumb, Rhatigan, & Orsillo, 2007). While other studies have combined interventions and measures of mindfulness and empathy, Block-Lerner et al.'s article is relatively unique in its thoroughness, detail, and rationale of the relationship of mindfulness to empathy components. Indeed, the researchers note that their underlying purpose for the article is to open the dialogue for future research in this area.

The authors hypothesized empathy as one of many possible outcomes of mindfulness (Block-Lerner, Adair, Plumb, Rhatigan, & Orsillo, 2007). Nonjudgmental, present-moment awareness, they argued, was amenable for increasing ones' ability to comprehend and convey accurate and compassionate understanding of another's emotional experience, which in turn leads to a deepening sense of intimacy and relationship satisfaction. Drawing on Davis (1980), the authors note that perspective taking and empathic concern imply a stance toward one's own thoughts and feelings that is consistent with goals of mindfulness theories and training.

In an exploratory study with a small community sample of women Block-Lerner et al. (2007) correlated the IRI with the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R; Feldman, Hayes, Kumar, & Greeson, 2003), a measure of mindfulness facets that was included in the FFMQ. The researchers found that the mindfulness measure was positively related to both Perspective Taking and Empathic Concern subscales (Block-Lerner et al., 2007). Interestingly, the authors noted that the IRI subscales did not correlate with MAAS items also included in the study. The authors suggested the difference in results was likely due to the fact that the CAMS-R and MAAS measure different aspects of mindfulness (i.e. the CAMS-R includes items related to acceptance). The authors also noted that the results were limited, given the exploratory nature of the study and the correlational and non-experimental design.

A number of recent studies have combined both the IRI and MAAS, or other mindfulness measures, in both correlational and experimental studies, often yielding conflicting results. Beitel, Ferrer, and Cecero (2005) correlated the MAAS with the IRI

in a study on psychological mindedness (PM), or the level of awareness of psychological processes in self and others. According to the authors, PM is associated with optimal individual and interpersonal functioning by increasing one's ability to see relationships among thoughts, feelings, and behaviors, as well as the general level of interest and responsiveness to the inner needs and experiences of others. MAAS scores were found to be positively correlated with a measure of psychological mindedness, as well as both perspective taking and empathic concern, though more so with perspective taking. The authors stressed that while mindfulness as measured by the MAAS is strongly related to psychological mindedness, they remain unique constructs, and suggested that mindful attention and awareness may be necessary preconditions for psychological mindedness. The authors also included the PT and EC subscale scores in a regression analyses with a measure of self-awareness on PM as criterion, and found all three variables to be significant predictors of PM. No other analyses were conducted with both the MAAS and IRI, however, apart from the initial bivariate computation of study measures.

Wachs and Cordova (2007) utilized mediation analyses to explore the relationship of mindfulness to outcomes of marital quality and partners' emotion skills, including empathy, and hypothesized that the relationship of mindfulness to marital quality would be mediated by such emotion repertoire skills. The authors argued that the manner in which individuals behave in the presence of strong emotion can be more or less relationally skillful, and that this is largely a learned skill. In other words, strong emotions such as anger, jealousy, loneliness, fear, or love may be universally experienced in relationships, but individuals' skills in managing them in relationships are essential for

the maintenance of healthy marriages. Emotional repertoire, or the ability to notice the feeling states of themselves and others, and attenuate the tendency to be overwhelmed by negative emotions during interpersonal interactions, is amenable for the cultivation and maintenance of perspective taking and empathic concern, as conceptualized by Davis (1980; 1983).

In a study with married couples, the researchers found that MAAS scores were positively associated with a measure of marital quality (Wachs & Cordova, 2007). Furthermore, mindfulness was positively related to measures of identification and communication of emotions, and significantly positively correlated with PT and EC from the IRI. However, IRI scores were not found to be significantly correlated with marital quality, precluding the empathy factor from the hypothesized mediation analyses. The authors noted these results as an unexpected deviation from previous literature that was likely anomalous (see Long & Andrews, 1990). On the other hand, regression analyses did reveal that anger reactivity and emotional identification and communication were both significant mediators of the relationships of mindfulness to marital quality (Wachs & Cordova, 2007).

A number of experimental studies involving MBSR or other meditation programs have found increases in participant reports of empathy, but with varied results. In one early study on meditation training with counselors, Lesh (1970) administered measures of empathic sensitivity to others' affect, openness to experience, and self-actualization to counselor trainees in a zazen meditation program. The author found that meditation training was associated with significantly higher ability to accurately detect and describe

others' feelings from baseline among meditators, while scores from control groups made up of counselors who did not take part in the program had no significant change. The authors noted possible group effects due to sampling procedures, however.

Galantino, Baime, Maguire, Szapary, and Farrar (2005) gave the IRI to a sample of health workers from a large university hospital taking part in an MBSR program. The study addressed the effect of MBSR on cortisol levels, and reports of burnout, empathy, and communication among workers. Interestingly, changes in empathy from baseline were not significant, although empathic concern and personal distress had the largest trends. The authors suggested that both methodological issues and measurement limitations may have contributed to the non-significant findings. That is, the sample was small with high attrition, and lacked adequate controls such as an experimental group. The authors also questioned whether the program was not associated with empathy, or that the IRI was simply not a sensitive enough scale to assess change in empathy for the purpose of the study design.

Shapiro, Schwartz, and Bonner (1998) conducted an MBSR study with medical and premedical students, and hypothesized that program participation would be associated with lower levels of depressive symptoms, anxiety, and psychological distress, and an increase in empathy and spirituality. In addition to the general MBSR activities, the researchers included "lovingkindness" and "forgiveness" meditations, as well as experiential exercises designed to cultivate mindful listening skills and empathy for patients. The authors found that the intervention was associated with significantly lower depression, anxiety, and distress symptoms, and significantly higher scores on the

empathy scale in the experimental group, in comparison to a waitlist control. The authors then constructed an exploratory path analytic model of change that suggested the intervention was associated with a significant decrease in trait anxiety, which in turn had a significant direct effect on the study outcomes, indicating a strong mediating influence.

Unanswered Questions

In general, previous research gives some support for a relationship of mindfulness to empathy. However, study results are varied and inconclusive. The strongest evidence may come from research with MBSR, due to the experimental nature of the designs. Nonetheless, the overall implications are clouded by the small amount of studies on the topic and the variety in designs and results, making comparisons difficult. For example, the intervention in Shapiro et al. (1998) included activities that were specific to empathic responding as an outcome. Lesh (1970) and Galantino et al. (2005), on the other hand, measured empathy as an indirect or secondary outcome of mindfulness training that did not specifically include an empathy or interpersonal focus. At best, one could conclude that further research is needed in this area to help specify, for instance, how much empathy as an outcome may be attributable to either mindfulness or empathy training in general.

Shapiro et al. (2006) noted that the majority of mindfulness research in recent years has focused on clinical outcomes of mindfulness-based interventions, and has more or less answered the question whether or they can be effective. The authors argued that research on mindfulness mechanisms is now needed to explore how mindfulness processes affect outcomes. And despite the possibility that mindfulness-based

interventions could be associated with increases in empathic responding, the aforementioned studies give little indication of the manner in which empathy may actually be related to mindfulness components. The correlational and/or non-experimental studies with self-report mindfulness and empathy measures, however, do highlight these processes in a way the previous studies with meditation programs were unable to.

One possible advantage for using self-report measures to highlight mindfulness mechanisms is that mindfulness components and processes may be observable in populations both in and out of meditation contexts, effectually widening the range of study participants and the ability to generalize results. Although, a potential problem for assessing mindfulness outside of meditation contexts may be that by measuring pre-existing conditions, any observed or unobserved connections between variables is more difficult to explain. The IAA may help minimize this problem by attempting to take into account contextual variables associated with mindfulness mechanisms measured by self-report, perhaps even if separated from formal meditation activities. As opposed to measuring empathy strictly as an outcome or precursor to mindfulness, for example, self-report studies based on IAA axioms may allow for conceptualizing empathy as adjunct, if not central, to mindfulness mechanisms.

As it is, results from self-report, non-experimental studies on mindfulness and empathy to date appear somewhat contradictory. Beitel et al.'s (2005) study implies a relationship between mindfulness and empathy, but the manner of the relationship is not addressed, as this was not a research question associated with the study. Psychological

mindedness is arguably related to both mindfulness and empathy, yet it is unclear whether, for example, the relationship of either variable to PM is affected by the other. The authors did not specifically focus on these variables in the analyses beyond testing for their direct effects on PM. Similarly, the causal flow of empathy and mindfulness on PM suggested by the authors was not adequately addressed by the methodology. In general, no conclusions can be drawn from the study regarding the relationship of mindfulness to empathy, apart from the likelihood that both are associated with psychological mindedness.

Block-Lerner et al. (2007) drew upon Davis' empathy conceptualization, and found a positive relationship between CAMS-R scores and both PT and EC. As noted, the authors did not find significant correlation between the MAAS and IRI, which they attributed to differences of emphases between the measures. Similarly, Galantino et al. (2005) found no significant relationship between the two measures, to which the authors noted possible methodological problems. Wachs and Cordova (2007) did find a significant positive relationship between the MAAS and IRI, and between the MAAS and a measure of marital quality. However, the empathy measure was not significantly correlated with marital quality, making empathy unable to be tested as a mediator of mindfulness and marital quality.

The correlational results of these studies make drawing conclusions and making comparisons difficult. Nevertheless, the differing results in the case of Block-Lerner et al. (2007) highlight the limits of relying on unidimensional constructs for measuring mindfulness. Although the MAAS is a popular mindfulness measure, research by Baer et

al. (2004; 2006) suggests mindfulness may be best conceptualized as a multifaceted construct, warranting the use of multi-factored mindfulness measures. Use of the FFMQ, for example, would allow for exploring and comparing the relationships of other mindfulness components to empathy. To date, no published study has combined the IRI with a multi-factored measure of mindfulness, such as the FFMQ. It is therefore unknown whether mindfulness components predict empathy uniquely, and how the combination of mindfulness factors with an empathy variable affects outcomes.

In general, these studies are somewhat limited in their ability to measure mindfulness processes given their reliance on unidimensional mindfulness measures and research designs that fall short of adequately addressing mindfulness processes with respect to empathy. The following section will discuss avenues of exploration for exploring mechanisms of both mindfulness and empathy by drawing on concepts from the IAA model of mindfulness. Based on the assumption that mindfulness and empathy share component processes, and that mindfulness has been historically associated with affective and interpersonal variables such as empathy, it is hypothesized that the relationship of mindfulness to empathy may have unique effects on mindfulness outcomes.

Mindfulness Mechanisms and Mediation

Shapiro, Carlson, Astin, and Freedman (2006) suggested mediation analyses are appropriate for exploring the manner in which mindfulness processes lead to positive outcomes, and argued that valid and reliable self-report measures of mindfulness could be used to facilitate statistical mediation models. Mediation analyses utilize regression

methods to measure the relationship between a variable and its proposed outcome while controlling for the influence of a third variable on the relationship (Baron & Kenny, 1986). The IAA mindfulness model implies a process that extends beyond attention and awareness and related components discussed in the current literature, or "*what* one is practicing", and instead is central to the question of "how and why" mindfulness works. Empathy has been suggested to include components related to attention and attitudinal axioms in mindfulness (Block-Lerner et al., 2007), and thus could be conceptualized as a variable that mediates the relationships of mindfulness processes to outcomes.

Block-Lerner et al. (2007) suggested that both perspective taking and empathic concern involve an awareness and understanding of how another is reacting to his or experiences, which in turn implies a stance toward one's thoughts and feelings consistent with mindfulness. According to the authors, mindfulness facets such as attention, awareness, acceptance, and present-moment focus may be seen as developing or maintaining aspects of empathic responding. The authors also hypothesized that while elements of empathic responding correspond with mindfulness as a process, they suggested empathy as one of many outcomes of mindfulness. The IAA model, on the other hand, holds that mindfulness axioms and associated variables work together in a non-directional and simultaneous manner (Shapiro et al., 2006). To propose empathic concern and perspective taking to be related to IAA axioms may be to suggest that empathy is related to the whole process of mindfulness, as much as it is an outcome. Utilizing mediation models based on IAA theory may be one way of highlighting how perspective taking and empathic concern could affect the associations between

mindfulness mechanisms and outcomes, and perhaps give clues for how empathy relates to the mindfulness process as a whole.

The FFMQ includes factors related to attention and attitude that fit both the IAA model and the empathy and mindfulness connection as hypothesized by Block-Lerner et al. (2007), making the measure an optimal choice for exploration of empathy components as mindfulness mechanisms. For instance, perspective taking involves an awareness of others' thoughts and perceptions, a skill that arguably requires maintaining focused attention on others' direct and indirect communication and cues, particularly during interpersonal exchanges. Perspective Taking may then be expected to correlate with Act With Awareness on the FFMQ, the component most attributable to general attention and awareness. Empathic Concern may be expected to correlate with Describe, in that experiencing others' emotional states in a sympathetic manner may be associated with an ability to accurately label and verbalize one's own thoughts and emotions.

Following the IAA model, however, it is also likely that PT and EC more or less share mindfulness qualities of attention and attitude. Both Perspective Taking and Empathic Concern could be expected to correlate with FFMQ subscales related to acceptance – Nonjudging and Nonreactivity. Research suggests empathic responding involves referencing one's own experiences (Davis et al., 2004) The ability to allow such thoughts and feelings to occur without critical judgment or elaboration, while at the same time minimizing the tendency to avoid potentially strong affect, may be necessary to maintain both cognitive and emotional connection with others.

Clues for the manner in which the IRI factors may vary in their associations with different mindfulness components can be found in Block-Lerner et al. (2007). As mentioned previously, the authors found that both perspective taking and empathic concern were highly correlated with the CAMS-R (rs = .35, 33, respectively, $p<.05$), but did not correlate with the MAAS. According to Baer et al. (2006), the CAMS-R includes items related to attention, acceptance, non-judgment, and present-focus, with respect to thoughts and feelings in general daily experience. The CAMS-R items included in the final version of the FFMQ after redundant items from the scales were removed appear in the Act With Awareness and Describe subscales. However, items on the MAAS reflect attention and awareness in a behavioral manner, without the affective component. Furthermore, the included MAAS items all appear in the Act With Awareness subscale. Thus, the relationship between the IRI subscales and Describe may be higher than with Act With Awareness, suggesting that empathic responding may be related more to one's ability to describe and label emotions, than to the ability to mindfully attend to day-to-day activities.

In addition to the benefit of being able to correlate various mindfulness facets with empathy components, individual FFMQ factors could be combined with PT and EC in separate mediation analyses, testing for the effect of the addition of empathy variables on the relationships between mindfulness components and outcomes. Various studies on mindfulness in interpersonal contexts utilizing mediation analyses have been published focusing largely on the MAAS, effectually measuring attention and awareness in daily

activities as it relates to empathy. The use of the FFMQ, on the other hand, greatly extends this line of inquiry to allow for testing additional mediating effects on outcomes.

Previous studies point to the potential for mediation models in research involving mindfulness and interpersonal contexts, yet at the same time highlight the limitations of the MAAS. Wachs and Cordova (2007) found that MAAS scores were positively associated with a measure of marital quality and with both PT and EC from the IRI. However, the lack of correlation between the IRI and marital quality measure failed to meet the criteria for establishing empathy as a mediating variable between the MAAS and IRI. Previous research results have shown a correlation between marital quality and both perspective taking (Long & Andrews, 1990) and empathic concern (Davis & Oathout, 1987), making interpretation difficult on this point. The authors do mention that since the completion of their study the newer mindfulness measures had come out that better reflect the non-evaluative aspect of mindfulness, and which could be useful to further tease out mechanisms of mindfulness with respect to interpersonal contexts (Wachs & Cordova, 2007). As the FFMQ uses items from each of these measures, its use increases the likelihood that relationships can be found among mindfulness and IRI components, perhaps allowing for mediation criteria to be more effectively established.

Barnes et al's (2007) study found that pre-existing levels of anxiety and anger mediated the relationship of mindfulness to post-discussion anxiety and anger, suggesting that partners who score higher on mindfulness are more likely to maintain lower levels of anxiety and anger during and after situations marked by interpersonal conflict. Furthermore, 'state' mindfulness mediated the relationship of pre-conflict levels of

mindfulness to other relational outcomes, giving further proof that maintaining mindful attention and awareness during conflict is associated with less negative outcomes related to conflict in relationships. In addition to indicating the potential for mediation analyses in mindfulness studies, this study highlights both the contextual and complex nature of mindfulness. The results of the authors' use of a modified, 'state' version of the MAAS during the conflict-discussion may give support for the IAA model of mindfulness, in that contextual factors such as purpose and attitude may have played important roles in the manner in which attention and awareness predicted outcomes.

Hoopes, McCarthy, and Richardson (2006) utilized multiple regression and mediation analyses to show how other well-being variables affect the relationship of mindfulness to outcomes. The researchers hypothesized that secure adult attachment style and social connectedness, variables related to interpersonal well-being at close or intimate partnership levels and peer or societal levels respectively, would require a manner of relating to others that includes mindfulness qualities. They also hypothesized that the combination of these variables would predict individual well-being, particularly in the manner that one perceives and manages stressful experiences.

In a sample of college age participants (Hoopes, McCarthy, & Richardson, 2006) it was found that the MAAS and measures of secure adult attachment and social connectedness correlated highly with measures of perceived stress and sense of coherence (defined as an orientation toward life that reflects the extent an individual perceives the world as comprehensible, manageable, and meaningful) (Antonovsky, 1987). Furthermore, when entered in separate multiple regression models with perceived

stress and sense of coherence as outcomes, mindfulness, attachment, and social connectedness significantly predicted perceived stress and sense of coherence, with each variable contributing uniquely and significantly (Hoopes, McCarthy, & Richardson, 2006). The authors concluded that mindfulness and variables related to healthy interpersonal functioning predict perceived stress and sense of coherence in individuals, and that the effects of the predictors are fairly unique.

In a secondary analysis of the data the authors suggested that while there may be an association between mindfulness and secure attachment relationship style, there is a possibility that the association may be mediated by social connectedness (Hoopes, McCarthy, & Richardson, 2006). That is, in addition to attention and awareness, maintaining healthy intimate relationships might require a general confidence and sense of belongingness within the larger social context. Similarly, the researchers suggested that the association of mindfulness to perceived stress may be mediated by sense of coherence, in that a healthy manner of perceiving stress is likely to entail a sense of confidence in one's ability to manage life stress in a meaningful way, beyond what is implied by attention and awareness alone.

The authors then analyzed the relationships of mindfulness to attachment, as well as mindfulness to perceived stress, while taking into account the effects of the mediating variables on these relationships (Hoopes, McCarthy, & Richardson, 2006). When the interpersonal variables were entered into a regression equation simultaneously with the mindfulness measure with attachment style as criterion, social connectedness completely mediated the relationship of mindfulness to attachment style, such that the coefficient

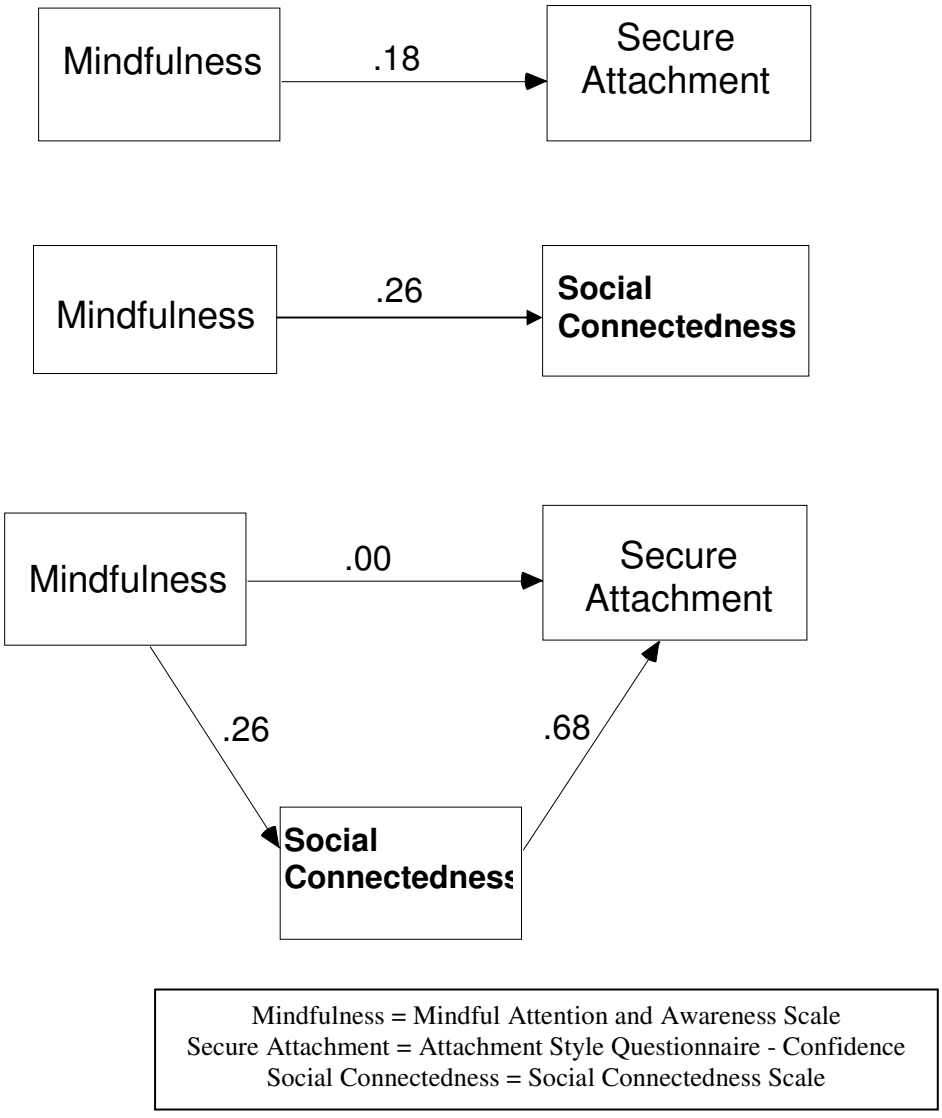
was zero (see Figure 1). Similarly, sense of coherence partially mediated the relationship of mindful attention and awareness to perceived stress, when the three were entered simultaneously (see Figure 2). The researchers concluded that the relationship of mindful attention and awareness to individual and interpersonal well-being may be affected by variables that are not taken into account by the mindful attention and awareness measure alone.

Viewed in light of Shapiro et al. (2006), the Hoopes et al. (2006) study may give support to the argument that the context in which mindfulness mechanisms such as attention occur is salient to the whole process. The effect of mindfulness skills on perceived stress, for example, may in part be dependent by one's ability to view life as comprehensible, manageable, and meaningful, in order to cope with stress. Likewise, in the case of secure attachment, a sense of belongingness to the overall social context may preclude attention and awareness in healthy close relationships. Furthermore, the results are similar to Barnes et al.'s (2007) in that they illuminate how the MAAS can be limited in its ability to conceptualize mindfulness in context without modifying items or combining it with other measures.

The results of these studies may also be relevant to Shapiro et al. (2006) given the interpersonal focus often ascribed to mindfulness in the traditional sense. Thus, mediation models of mindfulness that include interpersonal variables such as empathy may be particularly useful for highlighting mindfulness mechanisms. Moreover, combining interpersonal variables with a multi-factored mindfulness measure may be all the more useful in this regard.

Figure 1

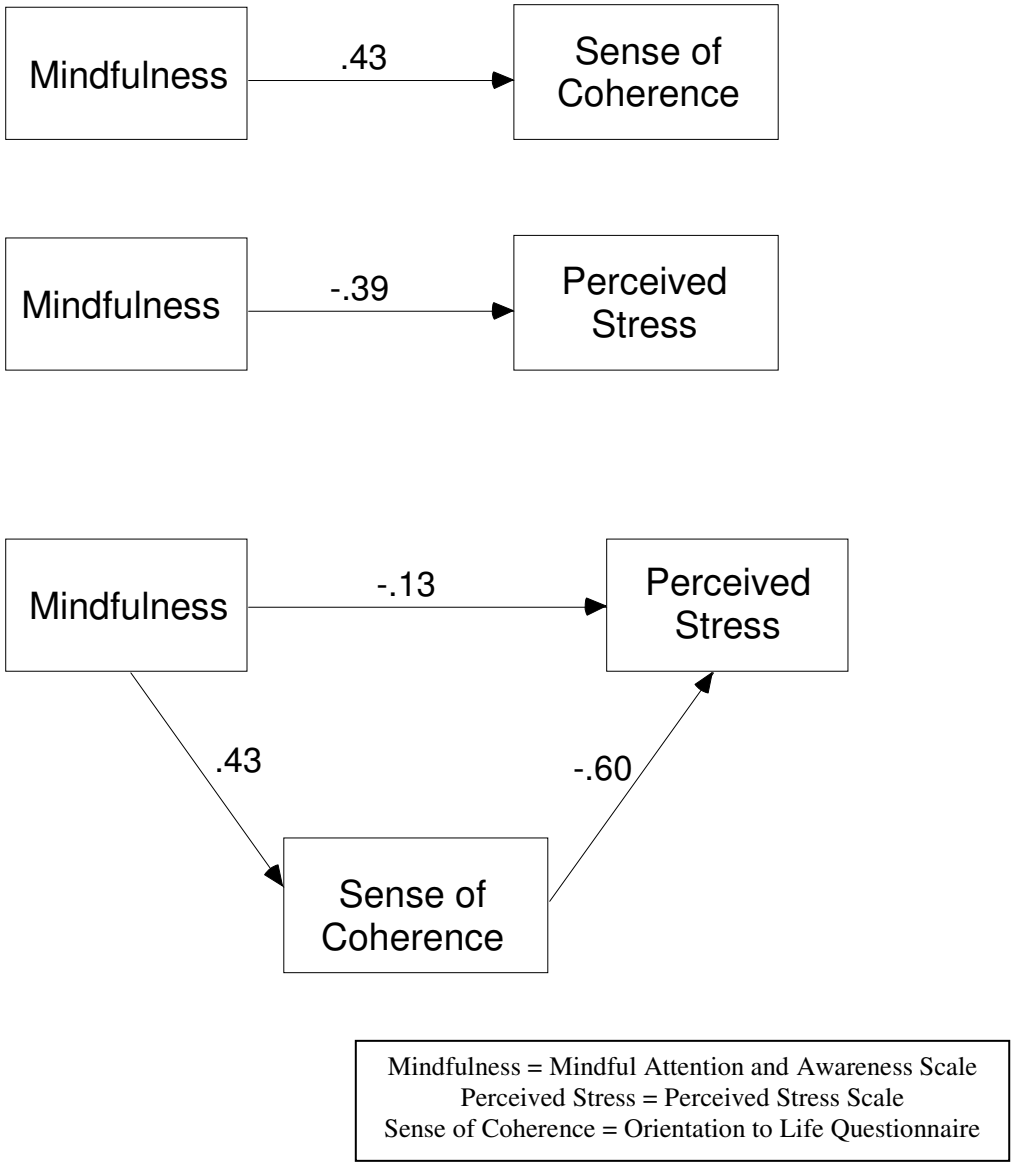
Relationship of Mindfulness to Secure Attachment Mediated by Social Connectedness



Note: Sequence of regression equations making the case for mediation. Attachment and social connectedness were regressed on MAAS scores in separate equations. The coefficients were significant at $p < .001$. When the three variables were entered simultaneously the coefficient for mindfulness and attachment decreased to zero, indicating a perfect mediation by social connectedness.

Figure 2

Relationship of Mindfulness to Perceived Stress Partially Mediated by Sense of Coherence



Note: Sequence of regression equations making the case for mediation. Sense of coherence and perceived stress were regressed on MAAS scores in separate equations. The coefficients were significant at $p < .001$. When the three variables were entered simultaneously the coefficient for mindfulness and perceived stress decreased significantly, indicating a partial mediation by sense of coherence.

Literature Summary and Exploratory Research

Mindfulness is a quality of consciousness associated with a focused engagement in the present moment, as well as a non-judgmental and accepting stance toward thoughts, feelings, and sensations that arise via attention and awareness (Baer, 2003; Bishop et al., 2004; Kabat-Zinn, 1990). Mindfulness has a long tradition within Buddhist psychology as a way alleviating suffering in self and others, and for cultivating a sense of connection and appreciation of the self in relation to others and the world around. (Bankhart, Dockett, & Dudley-Grant, 2003; Fulton & Siegel, 2005). Buddhist meditation practices remain the most popular forms of mindfulness training. However, studies involving self-report measures of mindfulness indicate mindfulness behaviors can be observed in populations without formal meditation experience (Baer, 2003; Kabat-Zinn, 2003).

Mindfulness has been shown to be related to increased resilience to psychological and physiological distress (Grossman et al., 2004; Kabat-Zinn, 2003), as well as a viable theoretical approach for mood and anxiety disorders, suicide and self-injurious behaviors, chronic pain, substance abuse, and smoking cessation (Hayes & Wilson, 2003; Kabat-Zinn, 1990; Linehan, Tutek, Heard & Armstrong, 1994; Teasdale, Hayhurst, Pope, Williams & Segal, 2002). In addition, studies on mindfulness-based interventions with an interpersonal focus indicate mindfulness concepts can be appropriate for relational wellness goals such as relationship satisfaction, acceptance of partner, closeness, increased relational stress coping, effective communication, and decreased potential of dysfunctional pattern relapse (Carson, Carson, Gil, & Baucom, 2004; Christensen,

Baucom, Atkins, Berns, Wheeler, & Simpson, 2004; Fruzzeti & Iverson, 2005; Jacobsen, Christensen, Prince, Cordova, & Eldridge, 2000; Linehan, 1993; Surrey, 2005).

Research aimed at conceptualizing components and processes of mindfulness suggests that variables related to attention and acceptance are salient to an overall mindfulness construct (Bishop et al., 2004; Brown & Ryan, 2003; 2004; Baer et al., 2004; 2006). In an effort to synthesize research involving components related to mindfulness, Baer et al. (2006) combined various measures into one composite measure, using factor analysis to highlight unique components of a multi-faceted mindfulness construct. Study results suggest that mindfulness can be effectively measured as a multi-faceted construct in college-age populations with or without formal meditation experience.

Shapiro, Carlson, Astin, and Freedman (2006) argued that while research supports both the conceptual and practical usefulness of mindfulness, less is known about how mindfulness actually works. The researchers suggested a 3-part model of mindfulness that views intention, attention, and attitude as cyclical and simultaneous mechanisms, whereby qualities such as purpose, awareness, acceptance, and/or compassion work together to bring about outcomes commonly attributed to mindfulness. In addition, the researchers argued that traditional intentions for exhibiting mindfulness behaviors include the cultivation of compassion and connection with others, but that efforts to conceptualize and integrate mindfulness concepts within contemporary health care trends often downplay such implications.

Empathy appears in the Buddhist psychology literature as a quality of mindfulness (Fulton, 2005; Morgan & Morgan, 2005; Schwartz & Shapiro, 2000; Scuka,

2005). Research suggests increases of empathy are related to decreases in dysfunctional interpersonal behaviors (Cramer, 2003; Davis & Oathout, 1987; Scuka, 2005), and lower psychological distress (Beitel et al., 2004). Empathic responding has also been shown to be associated with mindfulness, suggesting a relationship (Beitel et al., 2004; Block-Lerner, Adair, Plumb, Rhatigan, & Orsillo, 2007; Christensen et al., 2005; Davis et al, 2004; Galantino et al., 2005; Lesh,1970; Shapiro, Schwartz & Bonner, 1998; Wachs & Cordova, 2007).

Shapiro et al. (2006) noted that working toward a testable model of mindfulness process is necessary to truly explore how mindfulness affects change and transformation. Aside from the utility of valid mindfulness measures in this regard, the authors claim that statistical analyses involving mediation would allow researchers to explore the "how" and "why" mindfulness activities work, thereby increasing our empirical understanding of mindfulness beyond mere efficacy. Furthermore, conceptualizing empathy as related to mindfulness mechanisms according to the IAA, as well as including empathy components in mediation models, offers an intriguing avenue of exploration that is in line with traditional views on mindfulness. Previous studies utilizing mediation analyses have yielded valuable information on the effect of contextual variables on the relationship of mindfulness behaviors to outcomes. Studies on mindfulness and empathy have had mixed results, however, due possibly to limitations in both study design and the use of one-dimensional mindfulness measures.

A study is proposed that utilizes college-age participants in research on aspects of mindfulness outside of formal meditation contexts. The study involves combining

Perspective Taking and Empathic Concern subscales from the Interpersonal Reactivity Inventory (IRI: Davis, 1980), a measure of empathy, with self-report measures of mindfulness and both individual and interpersonal outcomes in a study on the relationship of empathy to mindfulness. It is hypothesized that a multi-factored mindfulness model will predict empathy components of perspective taking and empathic concern. It is also expected that the addition of the empathy components to regression models that include FFMQ subscales and outcomes of psychological distress and anxiety, as well as relationship satisfaction, will result in significant decreases in coefficients between mindfulness components and outcomes, indicating a mediating influence. A model of mindfulness that includes empathy will also be analyzed in an exploratory manner for any additional insight on the relationship of mindfulness to empathy.

Chapter 3: Methodology

The following chapter will discuss the research questions, hypotheses, and statistical methodology used in the study. The discussion will commence with an overview of the study hypotheses, followed by details of the participants and study design. Next will be descriptions of the measurements used for independent and dependent variables. Last, an outline of the statistical analyses performed and their results will conclude the chapter.

The main goal of this study is to clarify the relationships of variables associated with mindfulness to empathy by testing their direct and indirect effects on outcomes of interpersonal behaviors and psychological distress. The study takes the theoretical stance that, in addition to being associated with mindfulness, empathy components should impact the relationship of mindfulness facets on individual and interpersonal outcomes. Research questions and hypotheses are as follows:

Research Question and Hypotheses #1: What are the relationships of mindfulness components to empathy factors and outcome variables?

Previous research suggests that mindfulness may be conceptualized as a multi-factored construct made up of unique yet interrelated components (Baer, Smith, & Allen, 2004; FFMQ: Baer, Smith, Hopkins, Kreitemeyer, & Toney, 2006). The Five Factor Mindfulness Questionnaire has been used successfully with college samples, giving evidence for the relationship of mindfulness components to well-being variables in this population. However, research on the relationship of mindfulness components to

interpersonal mindfulness quality variables such as empathy, as well as outcomes such as relationship satisfaction, have had mixed results, perhaps due in part to the use of unidimensional measures of mindfulness (Barnes, Brown, Krusemark, Campbell, & Rogge, 2007; Block-Lerner, Adair, Plumb, Rhatigan, & Orsillo, 2007; Wachs & Cordova, 2007). It remains to be seen if components that comprise a multi-faceted mindfulness measure such as the FFMQ are related to these variables.

To address this question, Pearson Product Moment Correlations will be computed to determine the bivariate relationships between mindfulness factors, empathy, anxiety, psychological distress, and relationship satisfaction. It is expected that the FFMQ variables making up the 4-factor mindfulness model (Act With Awareness, Nonjudging, Nonreactivity, and Describe) will be significantly and positively intercorrelated. It is also expected that each of the four factors will be significantly and positively correlated with perspective taking and empathic concern factors from the empathy scale, positively correlated with relationship satisfaction, and negatively correlated with anxiety and psychological distress.

Research Question and Hypotheses #2: Does the four-factor mindfulness model predict empathy? And more specifically, which FFMQ factors will contribute significant unique variance to perspective taking and empathic concern?

Block-Lerner et al. (2007) argued that nonjudgmental, present-moment awareness can enhance the ability to comprehend and convey accurate and compassionate understanding of another's emotional experience, which in turn can lead to a deepening

sense of intimacy and relationship satisfaction. Research with the Interpersonal Reactivity Inventory (Davis, 1980) suggests empathy may include both cognitive and emotional components, both of which have been shown to be positively associated with mindful attention and awareness (Beitel, Ferrer, Cecero, 2005; Wachs & Cordova, 2007). However, Block-Lerner et al. (2007) did not find a relationship between MAAS items and the IRI, and instead found a relationship between both perspective taking and empathic concern and a mindfulness measure with items reflecting acceptance. These findings demonstrate the limitations of using unidimensional mindfulness measures. The relationship of components of empathy to a multifactored mindfulness construct remains untested.

To answer this question, both Perspective Taking and Empathic Concern subscale scores from the IRI (Davis, 1980) will be regressed on the four FFMQ factors in separate multiple regression equations. It is expected that R^2 for the four-factor FFMQ model and both PT and EC subscales will be significant. The relationship of individual predictors to the empathy factors, while controlling for all others in the model, is less certain, however. As such, the coefficients will be reviewed in an exploratory manner, with the intent of shedding additional light on the results of the hypothesis testing.

Research Question and Hypotheses #3: Does Perspective Taking and Empathic Concern mediate the relationships of mindfulness components to psychological distress, anxiety, or relationship satisfaction?

Shapiro et al. (2006) argued that mindfulness is best conceptualized within a context of intention, attention, and attitude, more accurately reflecting the traditional role of mindfulness. The authors suggested that mindfulness mechanisms can be explored through the use of mediation analyses involving valid and reliable measures of mindfulness, with the intent for building a testable model for explaining how mindfulness affects change and transformation. In particular, testing for the effects of mediating variables commonly viewed as mindfulness qualities allows for the exploration for how and why mindfulness variables work, potentially adding to the current dialogue regarding mindfulness constructs and mechanisms. Empathic responding can be viewed as being related to attention and attitudinal qualities according to the IAA model of mindfulness, which in turn can affect how mindfulness mechanisms bring about outcomes (Morgan & Morgan, 2005; Shapiro & Schwartz, 2000).

According to Baron and Kenny (1986), support for a mediating variable can be established by: (1) First establishing that a variable *X* predicts an outcome Y by regressing the outcome variable on the predictor and finding a statistically significant relationship, (2) establishing *X* is a significant predictor of the mediating variable *M*, also by regression, (3) establishing *M* is a significant predictor of *Y* when controlling for *X*, by simultaneously regressing *Y* on *X* and *M*. *M* can be argued to mediate the relationship of *X* and *Y* if the path coefficient is significantly reduced by the presence of *M* in the model.

Step 1 for meeting mediation criteria in all models to be tested will be determined by regressing each outcome variable on the four-scale FFMQ solution simultaneously in separate multiple regression equations, and testing the statistical significance of the

contribution of variance from each of the subscales to the outcomes. In this case, variables X and Y then represent the path coefficients for each FFMQ subscale and outcome measure, respectively. Direct path coefficients corresponding to the FFMQ and IRI subscales from the regression equations in Research Question #2 will be used to establish mediation criteria for Step 2. For variables XY with coefficients not meeting step 1 no additional mediation analyses will be pursued. Similarly, analyses would not proceed for variables XM that fail to meet step 2.

Step 3 will be established by hierarchical regression, whereby the IRI components are added to the multiple regression models that include the FFMQ subscales as predictors and the outcome measures as dependent variables. ΔR^2 will indicate whether significant change occurs in the models with the addition of the IRI subscales, and methods involving the product confidence limit distributions of the indirect effect will be used to determine significance of mediation of the subscales (MacKinnon, Fritz, Williams, & Lockwood, 2007). For variables XY and/or XM meeting steps 1 and 2 for mediation criteria, it is expected that perspective taking and/or empathic concern will mediate the relationships of FFMQ subscales to relationship satisfaction, anxiety, and psychological distress, such that the presence of either PT or EC in the models will result in significant decreases in direct path coefficients from FFMQ subscales to the outcome variables.

Participants

261 volunteer participants from the Educational Psychology college subject pool were originally recruited for the study. Participants obtained course credit for participation in the study. Sample demographics were considered representative of the University of Texas at Austin community, and other large southwestern universities (56.7% Female; 43.3% Male; Age 18-53, M = 21.5; Ethnicity: Caucasian 57.9%; Latino/a 18.8%; Asian/Pacific Island 15.3%; African American 5%; Other 3.1%). On questions related to relationship orientation, participants answered Heterosexual 93.5% and Same-sex 1.5%. Regarding relationship status, the majority of students described their current relationships as Dating Not Cohabitating 70%, while the others described theirs as Cohabitating; Single, or Married/Domestic Partnership (13.8%, 12.3%, 3.8%, respectively). 71.2% reported their length of relationship to be a year or longer, while 28.7% responded less than a year. Regarding familiarity with meditation practice, 44.4% responded to having no familiarity and 38.7% said they had a little familiarity, while 3.4% said they had quite familiar, with 1.5% very familiar. However, a clear majority responded they never meditate (80%), while the remaining participants responded that they sometimes or often meditated (16.9% and 2.3% respectively).

A secondary review of the methodology highlighted an issue of validity surrounding participants' reported relationship status and the instructions for completing the Relationship Assessment Scale. Participants identifying themselves as not currently in a romantic relationship (Single) were asked to consider their closest friend when answering RAS items. The researchers later decided, however, that answers from this

group of participants would be at risk for bias, given the lack of focus on romantic relationship functioning in comparison to the majority of respondents in the study. Scores from participants who responded Single were subsequently dropped from the final analysis to maintain data consistency and design integrity. The final analyses included scores from 229 participants.

Procedure

The participants reviewed and signed a consent form, and then were instructed to complete an online survey with a brief demographic section and five study measures, which included the Five Factor Mindfulness Questionnaire (FFMQ: Baer et al., 2006), Interpersonal Reactivity Index (IRI: Davis, 1980), Relationship Assessment Inventory (RAS: Hendrick, 1988), Beck Anxiety Inventory (BAI: Beck & Steer, 1997), and Hopkins Symptom Checklist-21 (HSCL-21, Green, Walkey, McCormick, & Taylor, 1988). Items related to participants' current relationships and previous experience with meditation were included in the demographic portion of the survey, as well, for additional inquiry not directly related to study research questions, but for later exploratory purposes. The participants were then debriefed, and given a receipt of participation.

Measures

Five Factor Mindfulness Questionnaire (FFMQ: Baer et al., 2006).

The FFMQ is a 39-item inventory of mindfulness, scored on a five-point Likert scale (1 = never or very rarely true; 5 = very often or always true). The FFMQ combines items from five previously published mindfulness scales, including the Mindful Attention Awareness Scale (MAAS: Brown & Ryan, 2004), Freiberg Mindfulness Inventory (FMI:

Buchheld, Grossman, & Walach, 2001), Kentucky Inventory of Mindfulness Skills (KIMS: Baer, Smith, & Allen, 2004), Cognitive and Affective Mindfulness Scale (CAMS: Feldman, Hayes, Kumar, & Greeson, 2004; S. C. Hayes & Feldman, 2004), and Mindfulness Questionnaire (MQ: Chadwick, Hember, Lilley, & Dagnan, 2005). All items from the five scales were administered to a large sample (n = 613), and exploratory factor analysis (EFA) was conducted to determine the factor structure among the items, which yielded a five-factor subscale solution. Verbally and statistically redundant items were deleted from the final scale, along with items with factor loadings lower than .20. Subscales measure the ability to attend and engage fully in one's current activity (Acting With Awareness), be nonjudgmental about the present moment experience (Nonjudging), maintain a non-reactive stance toward internal experience (Nonreactivity), label observed phenomena such as feelings (Describe), and to notice internal or external phenomena such as bodily sensations, thoughts, emotions, sounds, and smells (Observe). Confirmatory factor analysis (CFA) revealed a 4 factor solution (Observe not included) fit the data best for a sample where the majority of participants reported no meditation experience, while the five factor solution fit for a sample that all reported some meditation experience. The authors suggested either solution to be appropriate for future use, depending on the sample demographics. Sample items include "I criticize myself for having irrational or inappropriate emotions" (Nonjudging; reverse scored), "In difficult situations, I can pause without immediately reacting" (Nonreactivity), "When I do things, my mind wanders off and I'm easily distracted" (Act With Awareness; reversed scored), "I'm good at finding words to describe my feelings" (Describe). Items are summed for

subscale and total scores. 19 items are reversed scored. Alpha coefficients for MAAS, FMI, KIMS, CAMS, and MQ were .86, .84, .87, .81, and .85 respectively (ns = 595-613). The four-factor solution without the Observe scale was used for the current study, due to the low number of participants reporting a substantial familiarity with meditation or regular meditation practice. Cronbach's alpha for the current study was .87 for the total scale (n = 229). Alpha coefficients for Act With Awareness, Nonjudging, Nonreactivity, and Describe were .88, .89, .69, and .89, respectively.

Interpersonal Reactivity Scale (IRI; Davis, 1979).

The IRI is a 28-item, 5-point Likert scale measure consisting of four subscales that assess specific aspects of empathy (0 = Does not describe me well; 4 = Describes me very well). The two subscales of interest in this study are Perspective Taking (PT) and Empathic Concern (EC), which research suggests best represent the division between cognitive and emotional components of empathy, respectively (Davis, 1987). The PT scale measures one's tendency to adopt the point of view of other people in everyday life. Sample PT items include "Before criticizing somebody, I try to imagine how I would feel if I were in their place" and "I believe that there are two sides to every question and try to look at them both." The EC scale measures one's tendency to experience feelings of warmth, compassion, and concern for other people. Sample EC items include "When I see someone being taken advantage of, I feel kind of protective towards them" and "I often have tender, concerned feelings for people less fortunate than me." IRI scores are computed by summing item responses. Two PT items and three EC items are reversed

scored. Coefficient alpha for the four scales ranged from .71 to .77 (n = 1161). Total scale Cronbach's alpha for the current study was .84 (n = 229). Alpha for PT and EC individually were both .82.

RAS: Relationship Assessment Scale (RAS; Kendrick, 1988).

The Relationship Assessment Scale (RAS: Kendrick, 1988) is a 7-item, 5-point Likert scale measure of general relationship satisfaction (1 = low satisfaction; 5 = high satisfaction). Kendrick created the RAS as an alternative to other commonly used relationship satisfaction scales which she considered both lengthy and oriented primarily toward marriages. The RAS instead is designed for a more broad range of romantic relationships, such as dating or same-sex relationships. The author even suggested the measure might be appropriate for friendships, with little modification. The RAS measures satisfaction by self-report with items focused on respondents' current committed relationships. In a study with partners in dating relationships Kendrick found the RAS significantly predicted long-term relationship commitment, and was highly associated with measures of commitment and investment, consensus, cohesion, and self-disclosure. RAS scores are computed by summing item responses. Sample RAS items include "In general, how satisfied are you with your relationship?" and "To what extent has your relationship met your original expectations?" Coefficient alpha was .86 for one validation study (n = 125). For the study, participants were asked to consider their current romantic relationship when responding to the RAS. Cronbach's alpha for the current study was .82 (n = 229).

Beck Anxiety Inventory (BAI: Beck & Steer, 1997).

The Beck Anxiety Inventory is a 21-item self report measure of anxiety severity in adolescents and adults. The measure is rated on a 4-point Likert scale (0 = not at all; 3 = severely, I couldn't barely stand it). Respondents are asked to rate the items according to how they have felt over the previous week. Fourteen items represent somatic aspects of anxiety, including trembling hands, feeling hot, or shortness of breath, while other items reflect subjective aspects of anxiety, such as apprehension, terror, or fear of losing control. Items are summed for a total score. Higher total scores are suggestive of higher endorsements of anxiety symptoms. The BAI is moderately to highly correlated with other self-report and clinical rating scales of anxiety. Reliability indices range from .85 to .95, with internal consistency ranging from .86 to .92 for adults (ns = 40; 251). Test-retest reliability indices ranged from .62 to .75 for 11 days to 7 weeks between assessments (ns = 336; 160). Cronbach's alpha for the current study was .91 (n = 229).

Hopkins Symptom Checklist-21 (HSCL-21, Green, Walkey, McCormick, & Taylor, 1988).

The HSCL is a 21-item self-report inventory of symptoms of psychological distress, and is a shortened version of the Hopkins Symptom Checklist (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974). It is rated on a 4-point Likert scale (1 = not at all; 4 = extremely), with higher scores reflecting greater distress. The HSC includes 3 symptom subscales: General Feelings of Distress, Somatic Distress, and Performance

Difficulty. Sample items include "Trouble remembering things", "Feeling inferior to others", and "Numbness or tingling in parts of your body". Reliability index for the HSCL-21 is .91, and total score internal consistency for a combined, one factor solution is .94. Reliability indices for the subscales are .89 (General), .80 (Somatic), and .88 (Performance). The combined score, one factor solution is used for the current study. Cronbach's alpha for the current study was .88 (n = 229).

Data Analysis

The data distribution was inspected for normality, and potential outliers evaluated for their effect on the analyses. Pearson Product Moment Correlations were computed to determine the bivariate relationships among all variables. Collinearity between study variables was investigated by noting any patterns of moderate to high intercorrelations.

Simultaneous regression was used to test the hypothesis that the four-factor mindfulness model, with each subscale as individual predictors (Actaware, Nonjudging, Nonreact, and Describe), would significantly predict Perspective Taking and Empathic Concern subscales of the IRI (Davis, 1980) in separate equations, as measured by R^2. In addition, the individual contributions of variance for each subscale of the four-factor FFMQ solution to components of empathy were noted in the model. It was expected that each standardized coefficient for the FFMQ subscales would be significant at the $p<.05$ level.

A series of multiple regression equations were then conducted to determine the effects of the Perspective Taking and/or Empathic Concern subscales on the path coefficients for mindfulness components and outcome variables, following

recommendations by Baron and Kenny (1986) for the testing of mediation effects. In Step 1 of the procedure, each outcome variable (BAI, HSCL, and RAS) was regressed on the four FFMQ subscales simultaneously in separate equations. R^2 was expected to be significant and positive for relationship satisfaction, and significant and negative for anxiety and psychological distress outcomes. Step 2 was addressed by the analyses for Research Question #2, mentioned above. For step 3, a hierarchical procedure was used to compare a multiple regression model for each outcome variable, each of which included FFMQ subscales and either PT or EC as predictors, to models that did not include the IRI scales. ΔR^2 for the models was reviewed for significance, and changes in individual subscales was analyzed for significance by noting changes in t values, as well as the use of the product confidence limit distributions of the indirect effect to determine significance of mediation of the subscales. Beta coefficients for FFMQ components and outcome variables were expected to decrease significantly due to the inclusion of the IRI subscale scores to the models, indicating a mediating influence.

Chapter 4: Results

The data set was first investigated for skewness and/or kurtosis, and found to be within acceptable range, with the majority of skew and kurtosis statistics well below 1.0. Several potential outliers were also noted whose standardized scores reached or narrowly exceeded three standard deviations. Case sensitivity analyses were subsequently conducted that compared the total data set to those with outliers excluded. Potential outliers were not found to significantly change analysis results, as measured by recalculating all standardized scores after removing those for the potential outliers, and computing new z-scores. The primary study analyses thenceforth contained all cases of the data set. Descriptive statistics can be seen in Table 1.

Pearson Product Moment Correlations were then used to determine the bivariate relationships among all variables. The zero-order correlations between all variables, including subscales, and can be seen in Table 2. Intercorrelations ranged from small to moderate, suggesting multicollinearity between the variables is not a threat to statistical validity. The HSCL and BAI had a high correlation (.71), which was not considered a threat, as the outcome measures were not combined for analyses beyond a descriptive level. The potential for collinearity between the independent variables in particular was assessed computationally, confirming the unique contribution of the factors. The Variable Inflation Factor (VIF) and tolerance values were well within acceptable range.

Intercorrelations between the FFMQ subscales varied in contrast to Baer et al. (2006). The coefficient for Act With Awareness and Nonreactivity subscales was small and not significant (.105). Neither were Nonreactivity and Nonjudging correlated (.081).

In contrast, these correlations were all moderate to large in the FFMQ study. However, the relationship between Act with Awareness and Nonjudging was moderate and significant (.295, $p<.001$), although less so than in the FFMQ study. These findings are somewhat surprising, given the fact that the intercorrelations between these three subscales were the highest in the FFMQ study, and that the subscales showed the most incremental predictive validity in psychological symptoms (p. 42). Indeed, Baer et al.'s (2006) conclusions that both Nonjudging and Nonreactivity may be seen as ways of operationalizing acceptance may be questioned by these findings, due to the lack of association between these constructs. On the other hand, the moderate relationship between Act With Awareness and Nonjudging is supportive of the literature regarding attention and/or awareness and acceptance.

Describe showed moderate correlations with both Nonjudging and Act With Awareness. A similar pattern was seen in the FFMQ article, with the exception of Nonreactivity, which was moderately and positively correlated with Describe in the original study (Baer et al., 2006). The relationship of Describe to the attention and acceptance factors in this study may give support to the inclusion of the ability to label thoughts and emotions as a mindfulness component (see Linehan, 1993; Baer et al., 2004).

Correlations were significant between the four FFMQ subscales and both anxiety and psychological distress. The measure of relationship satisfaction did not correlate with any of the FFMQ subscales, however. The RAS did have a small but significant

negative relationship with psychological distress (-.137, p<.05). Distress in turn was highly correlated with anxiety (.71, p<.001).

Most intriguing were the correlations between the IRI subscales and the rest of the variables, ranging from mainly low and non-significant to moderate and significant in only a few cases. Perspective Taking showed moderate significant correlations with Nonreactivity and Describe (.239, .222, p<.001, respectively). Yet, Empathic Concern showed no correlations with any other variables, apart from Perspective Taking (.348, p<.001). The most striking finding, however, was that neither PT nor EC had significant correlations with any of the three outcome variables.

To assess the second research question, whether the multi-faceted mindfulness construct predicted empathy, simultaneous multiple regression analyses with the four mindfulness factors as predictors and the empathy subscales as criterion variables were conducted for both Empathic Concern and Perspective Taking empathy factors in separate equations (see Table 3). R^2 was low but significant for Perspective Taking (.092; $p < .001$), suggesting that the FFMQ model accounted for approximately 9% total variance in the cognitive empathy scores. R^2 was not significant for Empathic Concern, however (.017; $p = .413$). The contribution of variance by individual predictors to Perspective Taking was significant for Nonreactivity and Describe (ß =.192, $p <.01$; ß =.153, $p < .05$, respectively). For Empathic Concern, only Describe barely approached significance (ß=.138, $p = .051$).

To determine if Perspective Taking and/or Empathic Concern mediate the relationship of mindfulness components to outcomes, Step 1 involved regressing each of

the outcomes on the four FFMQ subscales in simultaneous multiple regression equations. R^2 for both distress and anxiety were significant (.299; .177, $p < .001$, respectively), but not for relationship satisfaction. For psychological distress, Act With Awareness and Nonjudge each added a moderate amount of variance (ßs = -.267; -.323, $p < .001$, respectively), and Describe added a small to moderate amount of variance (ß = -.146, p = .015). For anxiety, Act With Awareness and Nonjudge were again moderate (ßs = -.225; -.239, $p < .001$), but Nonreactivity this time added a small but significant amount of variance (ß = -.130, p = .039). Thus, step 1 of the mediation analyses were satisfied for Act With Awareness and Nonjudge for both the HSCL and BAI outcomes, as well as Describe for HSCL and Nonreactivity for BAI.

To satisfy step 2, beta coefficients from the multiple regression equations for the FFMQ subscales and Perspective Taking and Empathic Concern subscales were reviewed. As mentioned previously, only Perspective Taking was significant when regressed on the FFMQ. Both Nonreactivity and Describe added a small to moderate amount of variance, satisfying step 2 for the path coefficients for these subscales and Perspective Taking as *M*. Neither R^2 nor any subscale beta coefficients were significant for Empathic Concern, however, halting any further analyses involving EC.

For step 3, Perspective Taking was added to the regression equations that included the outcome variables and the FFMQ subscales as predictors. For distress, the addition of PT to the model resulted in a small but significant amount of change in R^2 ($\Delta R^2 = .019$, p = .013). When controlling for the FFMQ subscales, the direct effect for PT on the HSCL outcome was significant and positive (.145, p = .013). Moreover, the

direct path coefficient for Describe increased slightly, rather than decrease (- .168), while Act With Awareness and Nonjudge were largely unchanged. Results were similar for the anxiety outcome ($\Delta R^2 = .018$, $p = .028$). The direct path coefficient for PT was again positive and significant (.140, $p = .028$), while the remaining coefficients for the subscales again increased slightly. Thus, the results of step 3 did not indicate any mediating influence by the empathy factors. The mediation analyses were then ended without need for the product confidence limit distributions computation procedure.

These results suggest that the study hypotheses that the four factor mindfulness model would contribute significantly and uniquely to the empathy factors were partially met for Perspective Taking. And, although the addition of Perspective Taking to the mindfulness model did result in a slight amount of significant change in distress and anxiety, its presence in the model had somewhat of the opposite effect on the subscale paths, indicating no mediating influence. Thus, the hypothesis that empathy would mediate the affects of mindfulness on the outcome variables was not supported. On the other hand, the results do appear to support a relationship between Perspective Taking and mindfulness components, namely Nonreactivity and Describe. Moreover, the results do give additional support for the relationship of specific FFMQ components to psychological distress and anxiety, coinciding with clinical applications of mindfulness-based therapeutic models to related symptom presentations. Lastly, relationship satisfaction had no significant associations with mindfulness or empathy, a variant from previous studies due likely to design and measurement limitations.

To assess if the combined 2-factor empathy solution would add unique variance to outcomes when added to the mindfulness model, an exploratory model was constructed to predict distress, anxiety, and relationship satisfaction by mindfulness and empathy. A simultaneous multiple regression model with the four FFMQ subscales in the aforementioned order combined with EC and PT was used to predict each outcome separately. The results can be seen in Table 4. The model was significant for both distress and anxiety (R^2s .568; .444, $p < .001$), but not for relationship satisfaction. Moreover, Act With Awareness and Nonjudging added significant amount of variance to distress and anxiety outcomes. Also, Nonreactivity was significant for anxiety, while Describe was significant for distress. Neither PT nor EC added unique variance to any of the outcomes, however. The results of the model suggest that empathy components as measured by the IRI do not add unique variance above and beyond the four FFMQ subscales when entered together simultaneously in the regression equation.

Table 1

Descriptive Statistics

Measure	*Subscale*	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
FFMQ	actawa	8	40	26.44	6.135
	nonjud	8	40	26.84	6.762
	nonrea	11	33	20.90	3.869
	describ	12	40	29.42	5.864
IRI	PT	4	28	17.88	4.988
	EC	5	28	20.61	4.583
HSCL		22	71	39.71	10.218
BAI		0	44	13.65	10.249
RAS		14	35	28.53	4.708

Note: N = 229; FFMQ = Five Factor Mindfulness Questionnaire (Actawa = Act With Awareness; Nonjud = Nonjudging; Nonrea = Nonreactivity; Describ = Describe); IRI = Interpersonal Reactivity Inventory (PT = Perspective Taking; EC = Empathic Concern); HSCL = Hopkins Symptom Checklist – 21; BAI = Beck Anxiety Inventory; RAS = Relationship Assessment Scale.

Table 2

Intercorrelation Matrix for Mindfulness, Empathy, and Outcome Variables

	actawa	***nonjud***	***nonrea***	***describ***	***PT***	***EC***	***HSCL***	***BAI***	***RAS***
actawa	--	0.295**	0.105	0.203**	0.128	-0.021	-0.399**	-0.316**	0.018
nonjud		--	0.081	0.210**	0.106	-0.017	-0.438**	-0.323**	0.121
nonrea			--	0.244**	0.239**	0.000	-0.151*	-0.181**	0.049
describ				--	0.222**	0.117	-0.283**	-0.160*	0.038
PT					--	0.348**	0.016	0.0348	0.050
EC						--	0.103	0.102	0.111
HSCL							--	0.710**	-0.137*
BAI								--	-0.100
RAS									--

Note: FFMQ = Five Factor Mindfulness Questionnaire (Actawa = Act With Awareness; Nonjud = Nonjudging; Nonrea = Nonreactivity; Describ = Describe); IRI = Interpersonal Reactivity Inventory (PT = Perspective Taking; EC = Empathic Concern); HSCL = Hopkins Symptom Checklist – 21; BAI = Beck Anxiety Inventory; RAS = Relationship Assessment Scale.
** $p < 0.01$; * $p < 0.05$

Table 3

Regression Analysis for Prediction of Empathy by Mindfulness Components

Regression Analysis for Prediction of Empathy by Mindfulness Components							
Model	***Variable***	***B***	***SE***	***ß***	***t***	***Sig***	***R²***
Perspective Taking						.000**	.092
	Actaware	.053	.055	.065	.968	.334	
	Nonjudge	.029	.050	.039	.578	.564	
	Nonreact	.247	.085	.192	2.915	.004*	
	Describe	.131	.057	.153	2.271	.024*	
Empathic Concern						.413	.017
	Actaware	-.027	.052	-.036	-.509	.611	
	Nonjudge	-.023	.048	-.033	-.474	.636	
	Nonreact	-.033	.081	-.027	-.401	.689	
	Describe	.108	.055	.138	1.960	.051	

Note: FFMQ = Five Factor Mindfulness Questionnaire (Actawa = Act With Awareness; Nonjud = Nonjudging; Nonrea = Nonreactivity; Describ = Describe); IRI = Interpersonal Reactivity Inventory (PT = Perspective Taking; EC = Empathic Concern); HSCL = Hopkins Symptom Checklist – 21; BAI = Beck Anxiety Inventory; RAS = Relationship Assessment Scale.

** $p < 0.001$; * $p < 0.05$

Table 4

Regression Analysis for Variables Predicting Distress, Anxiety, and Relationship Satisfaction by Mindfulness and Empathy

Outcome	*Predictor*	*ß*	*Std. Error*	*Beta*	*t*	*Sig.*	*R^2*
HSCL						0.000**	0.568
	actawa	-.454	.098	-.273	-4.634	.000**	
	nonjud	-.492	.089	-.326	-5.547	.000**	
	nonrea	-.218	.154	-.082	-1.411	.160	
	describ	-.303	.104	-.174	-2.921	.004*	
	PT	.245	.127	.120	1.930	.055	
	EC	.156	.133	.070	1.178	.240	
BAI						0.000**	0.444
	actawa	-.385	.107	-.230	-3.601	.000**	
	nonjud	-.367	.097	-.242	-3.786	.000**	
	nonrea	-.399	.168	-.151	-2.371	.019*	
	describ	-.102	.113	-.059	-.905	.366	
	PT	.243	.139	.118	1.753	.081	
	EC	.131	.145	.058	.902	.368	
RAS						0.346	0.172
	actawa	-.015	.054	-.019	-.272	.786	
	nonjud	.089	.049	.128	1.819	.070	
	nonrea	.055	.085	.046	.651	.516	
	describ	-.006	.057	-.007	-.104	.917	
	PT	-.011	.070	-.012	-.158	.874	
	EC	.121	.073	.118	1.657	.099	

Note: N = 229; FFMQ = Five Factor Mindfulness Questionnaire (Actawa = Act With Awareness; Nonjud = Nonjudging; Nonrea = Nonreactivity; Describ = Describe); IRI = Interpersonal Reactivity Inventory (PT = Perspective Taking; EC = Empathic Concern); HSCL = Hopkins Symptom Checklist – 21; BAI = Beck Anxiety Inventory; RAS = Relationship Assessment Scale.
** $p < 0.001$; * $p < 0.05$

Chapter 5: Discussion

The results of the study do give some support for the hypothesis that a multifactored mindfulness model would predict empathy, at least in terms of perspective taking. Both Nonreactivity and Describe had moderate associations with PT, suggesting that the abilities to maintain a non-reactive stance toward internal experience and label feelings may be related to the process of imagining another's perspective. In Buddhist psychology, awareness of the impermanence of life and universal nature of suffering is believed to cultivate compassion and connectedness. Allowing oneself to perceive others' experiences can be a manifestation of such awareness. Moreover, it seems likely that perspective taking requires a certain level of equanimity in relation to perceived affect in self or others, as well as an accurate perception of the emotion. Otherwise, one is at risk of over identifying with, or conversely, avoiding perceived experiences in others. Viewed in this manner, these results more or less support a traditional view of mindfulness that includes interpersonal aspects.

The effect size was small for the prediction of perspective taking by the combined mindfulness model, however. And since the individual FFMQ factors did not all add significant variance to Perspective Taking (or Empathic Concern, for that matter), the possibility is that certain mindfulness skill sets may be more salient to empathic responding than others. The results echoed Block-Lerner et al. (2007) and Galantino et al. (2005) who found no association between IRI and the MAAS. The items that make up the MAAS and Act With Awareness reflect a general awareness of behaviors in daily functioning, whereas other FFMQ factors focus more on reactions to one's thoughts and

emotions. IRI items also tend to reflect one's awareness of interpersonal perceptions and feelings. Thus, one could conclude that heightened attention in everyday functioning is not a necessary condition for empathizing. This remains conjecture, however, as other studies have found significant correlations between IRI and the MAAS.

The lack of association with Nonjudgment may be more easily to explain. That is, non-judgment of one's thoughts and emotions may be somewhat foreign to individuals without formal meditation practice experience (Kabat-Zinn, 1990). Instead, cultural forces may preclude evaluation of certain emotions as more acceptable than others in general populations (Hayes, Strosahl, & Wilson, 2003). In contrast, empathic responding may be a more recognizable, and perhaps desirable trait. The question then remains whether dedicated practitioners are more likely to report an ability to maintain a less judgmental perception of their thoughts and emotions in connection with empathic responding. Due to the small number of participants reporting frequent meditation, however, the question remains beyond the scope of this study to address more fully.

The argument that mindfulness and empathy components are associated with relationship satisfaction, as measured here, was not supported. The lack of association of mindfulness and empathy to relationship satisfaction is surprising, again given the emphasis on empathy and related interpersonal variables in traditional mindfulness literature. In contrast, Barnes et al. (2007) and Wachs and Cordova (2007) found significant correlations between the MAAS and the Dyadic Adjustment Scale, a measure of relationship satisfaction and marital quality, modified in the case of Barnes et al. (2007) to be used with unmarried couples. Indeed, recruitment and instructions in this

study were almost identical for participants in Study 1 of Barnes et al. Burpee and Langer (2005) also found similar results with a measure of relationship satisfaction created by the authors. Thus, it remains unclear why results varied between these studies.

The current results were similar to Wachs and Cordova (2007) who did not find a significant correlation between the IRI and a measure of marital quality that included a marital satisfaction subscale. Previous research gives support for the association of empathy to relationship satisfaction (Cramer, 2003; Davis & Oathout, 1987). However, it should be noted that in Cramer (2003) and Davis and Oathout (1987) relationship satisfaction was measured in response to partners' empathic behaviors. One possible explanation is that satisfaction in romantic relationships is perhaps related to perceived partner empathy, rather than as an outcome of empathizing in and of itself. Or, it could be possible that empathic responding is in fact related to relationship satisfaction, but that the association is mediated by other factors. Lee, Draper, and Lee (2001) found that the association of a related interpersonal variable, social connectedness, to individual well-being was mediated by interpersonal dysfunctional behaviors. Thus, empathy may be related to one's own sense of well-being (in this case satisfaction in the relationship) if the empathizing coincides with desirable partner behaviors, including partner empathy. Future studies on empathy and relationship satisfaction should look at these variations more closely, and explore potential hypotheses for patterns in the literature.

Although a case could not be made for PT and EC as mediating variables in the current study, that Perspective Taking was found to be related to mindfulness components does suggest a relationship. Nor does the lack of associations with other

variables necessarily confirm that empathy does not play a mediating role in mindfulness processes. The study aimed to explore how empathy can affect mindfulness outcomes, to which a lack of association halted the mediation analyses. Empathy may be related to other proposed mindfulness outcomes, such as compassion or connectedness, or may be mediated by other variables. As this study represents a relatively new line of inquiry, it is hoped that these results not be erroneously construed as a final word on the effects of empathy or related variables in mindfulness. Rather, the study should be expected to open dialog for further exploration on the topic.

Study Limitations and Future Directions

It is likely that the study's ability to measure empathy as a mindfulness quality was limited in a number of important ways. First and foremost, the study was non-experimental, relying on correlation and regression models that do not take into account the effects of time or group differences in relation to an intervention. This is in contrast to Shapiro, Schwartz, and Bonner (1998) who not only measured empathy as an outcome of MBSR, but specifically included activities aimed at empathy and interpersonal well-being. It is likely that the addition of these activities is at least partly responsible for the increase in empathy scores. This study measured pre-existing levels of mindfulness and empathy, however. That empathy could be related to mindfulness in the traditional sense may be less relevant in a study sample that has little to no experience with mindfulness meditation training.

Apart from the general limitations of a non-experimental study, the study was also likely limited in its ability to address the IAA model fully. Shapiro and Schwartz (2000)

suggested that the MBSR study gave support for an intentional systemic model of mindfulness, the basis for the IAA construct. More specifically, the intention for incorporating affective qualities such as compassion and lovingkindness into the self-regulation practice expanded its implications into a larger contextual perspective. Thus, intention in the study was realized by the purposeful inclusion of mindfulness qualities related to both attention and attitude, which in turn extended the focus of the intervention from intrapersonal to interpersonal and transpersonal levels. That empathy increased as a result of the program may be further indication that intention is salient to the process of mindfulness on outcomes. By not including a mindfulness-based intervention focusing on empathy, or even mindfulness in general, the intention axiom may not have been realized in the current study, which in turn weakened the association of measurable attention and attitude to outcomes.

Intention in mindfulness implies, in essence, some type of activation of mindfulness skills to fulfill a specific purpose (Olendzki, 2005). This makes studying intention particularly difficult if one is only measuring mindfulness by observance or self-report without taking into account the learning of skills specific to the intent. Despite the likelihood that mindfulness behaviors can be observed in populations outside of training contexts, it may be important to consider the difference in observable and reportable phenomena attributable to mindfulness-based training activities in comparison when researching mindfulness and related outcomes.

This issue may be particularly salient for this study, given the lack of intervention specific for either mindfulness or empathy. Mindfulness is arguably related to healthy

interpersonal functioning, but perhaps only so much as such one's intent to enhance relational behaviors drives regular and focused mindfulness training toward that end. Hence, these findings not only suggest a need for including such interventions in research on mindfulness and interpersonal functioning, but give additional support for the case for the inclusion of intention in mindfulness dialogue. Future research on mindfulness and interpersonal functioning would do well to capitalize on these points.

The conceptualization of empathy as a mindfulness quality that in turn mediates mindfulness mechanisms may be limited in its own right. First, the actual place of empathy within a "chain" of mindfulness events remains unclear in the literature. For example, Block-Lerner et al. (2007) specifically define empathy as an outcome of mindfulness, while Shapiro and Schwartz (2000) refer to empathy as a mindfulness quality. As such, these models likely have different implications for how empathy is defined as a mediating variable. The latter claim stems from the view that intention, attention, and attitude co-occur in a simultaneous, cyclical process (Shapiro et al., 2006). One could conclude from this that empathy may play a more centralized role within mindfulness. The model where empathy is viewed as a mindfulness outcome, on the other hand, might view empathy as a unique variable, and perhaps less attributable to mediating effects.

Despite the fact that empathy appears to be associated with intention, attention, and/or attitude in Buddhist psychology literature, the direction, or lack of direction, of such a relationship is not specifically addressed. It can be argued, perhaps, that empathic responding is an example of intention for cultivating and displaying mindfulness skills.

That is, utilizing mindfulness behaviors to enhance empathy, for the ultimate purpose of increasing interpersonal well-being. This is not the same thing as saying empathy is an outcome of mindfulness, yet it is not far off. The relationship of mindfulness to empathy, if there is one, may in fact be an indirect one, accounted for by the influence of other variables more related to intention in terms of mindfulness practice.

This study may also be limited by the exclusion of other variables related to empathy. In particular, Personal Distress from the IRI was conceptualized by Davis (1980) as representing feelings of distress that may appear vicariously when viewing another in distress, but that could be alleviated by a helping response. Davis hypothesized that persons prone to feelings of anxiety and discomfort in emotional social settings would have more difficulty establishing and maintaining rewarding relationships (1983). Personal Distress then was expected, and subsequently found, to correlate negatively with PT and EC, as well as outcomes positively related to these subscales.

Later studies de-emphasized the PD subscale, and instead focused largely on PT and EC. As such, PD was intentionally left out of the proposal for this study under the assumption that any relationship between PD and mindfulness would be less relevant for the purpose of the study, due to the lack of emphasis given in the literature to PD in relation to the overall empathy construct. However, although the anxiety and distress measures did not correlate significantly with PT and EC, it is likely that the outcomes would be related to PD, which tends to be negatively correlated with PT and EC. Moreover, given that the mindfulness factors correlated with the anxiety and distress outcomes, it is also possible that relationships could be found between the FFMQ scales

and PD. Under the assumption that personal distress is, more or less, a component of empathic responding, the inclusion of PD in the mindfulness/empathy model could potentially yield valuable information regarding the relationship of mindfulness to empathy.

The construct of empathy as measured in this study is also likely limited due to its short history in comparison to the more common, and perhaps philosophically richer, concepts of compassion and sympathy. Researchers note that empathy research has been plagued by conflicting constructs and measurement problems, indicating a lack of consensus on empathy concepts that is likely reflected in the IRI (Duan & Hill, 1996). For instance, Empathic Concern includes items conveying an affective component related to empathy that may in fact be more indicative of sympathy (Wispe, 1986), in that they involve a heightened awareness of another's suffering. Furthermore, a significant portion of empathy theory and research has been devoted to its role in psychotherapy (Duan & Hill, 1996), making the appropriateness of measuring empathy in general populations somewhat questionable.

In contrast, interpersonal constructs such as compassion and sympathy may have deeper philosophic connections with more traditional literature from which to draw from, and are more likely to be recognizable by the general public (Wispe, 1986). But unlike sympathy, compassion in Buddhist psychology acknowledges the universality of suffering, making it an ideal interpersonal variable to study in relation to mindfulness. Unfortunately, measuring compassion at this time is limited by a lack of valid scales on the construct (Cassell, 2002). Future research on mindfulness in interpersonal contexts

could focus more in depth on compassion as a related construct, but may need to develop the means for measurement.

This study does indicate potential for future research on mindfulness in interpersonal contexts. The IAA model in particular adds a new dimension for exploration in this realm, but may be an avenue that is optimally conceptualized in relation to mindfulness as a practice and way of being, not merely observable or reportable behavior. As mindfulness concepts continue to become wide spread, it is important to not to lose track of its place in psychology from a historical standpoint. This is not to say that mindfulness mechanisms should not be subject to 'dismantling'. Rather, that researchers themselves be *mindful* of the contexts in which they explore mindfulness mechanisms.

Appendix A

Five Factor Mindfulness Questionnaire (FFMQ: Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006)

On a scale of 1-5 rate how best each item describes you, in your own opinion (1 = never or rarely true; 5 = very often or always true).

1. When I'm walking, I deliberately notice the sensations of my body moving.
2. I'm good at finding words to describe my feelings.
3. I criticize myself for having irrational or inappropriate emotions.
4. I perceive my feelings and emotions without having to react to them.
5. When I do things, my mind wanders off and I'm easily distracted.
6. When I take a shower or bath, I stay alert to the sensations of water on my body.
7. I can easily put my beliefs, opinions, and expectations into words.
8. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.
9. I watch my feelings without getting lost in them.
10. I tell myself I shouldn't be feeling the way I'm feeling.
11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.
12. It's hard for me to find the words to describe what I'm thinking.
13. I am easily distracted.
14. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.
15. I pay attention to sensations, such as the wind in my hair or sun on my face.
16. I have trouble thinking of the right words to express how I feel about things
17. I make judgments about whether my thoughts are good or bad.
18. I find it difficult to stay focused on what's happening in the present.
19. When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.
20. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.
21. In difficult situations, I can pause without immediately reacting.
22. When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.

23. It seems I am “running on automatic” without much awareness of what I’m doing.
24. When I have distressing thoughts or images, I feel calm soon after.
25. I tell myself that I shouldn’t be thinking the way I’m thinking.
26. I notice the smells and aromas of things.
27. Even when I’m feeling terribly upset, I can find a way to put it into words.
28. I rush through activities without being really attentive to them.
29. When I have distressing thoughts or images I am able just to notice them without reacting.
30. I think some of my emotions are bad or inappropriate and I shouldn’t feel them.
31. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.
32. My natural tendency is to put my experiences into words.
33. When I have distressing thoughts or images, I just notice them and let them go.
34. I do jobs or tasks automatically without being aware of what I’m doing.
35. When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.
36. I pay attention to how my emotions affect my thoughts and behavior.
37. I can usually describe how I feel at the moment in considerable detail.
38. I find myself doing things without paying attention.
39. I disapprove of myself when I have irrational ideas.

Appendix B

Interpersonal Reactivity Inventory, PT and EC subscales (IRI: Davis, 1983)

The IRI is a 28-item, 5-point Likert scale measure consisting of four subscales that assess specific aspects of empathy. (0 = Does not describe me well; 4 = Describes me very well).

Perspective Taking

1. Before criticizing somebody, I try to imagine how I would feel if I were in their place.
2. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments. (-)*
3. I sometimes try to understand my friends better by imagining how things look from their perspective.
4. I believe that there are two sides to every question and try to look at them both.
5. I sometimes find it difficult to see things from the "other person's" point of view. (-)
6. I try to look at everybody's side of a disagreement before I make a decision.
7. When I'm upset at someone, I usually try to "put myself in his/her shoes" for a while.

Empathic Concern

1. When I see someone being taken advantage of, I feel kind of protective towards them.
2. When I see someone being treated unfairly, I sometimes don't feel very much pity for them. (-)
3. I often have tender, concerned feelings for people less fortunate than me.
4. I would describe myself as pretty a soft-hearted person.
5. Sometimes I don't feel sorry for other people when they are having problems. (-)
6. Other people's misfortunes do not usually disturb me a great deal. (-)
7. I am often quite touched by things that I see happen.

*(-) = Reversed scored

Appendix C

Hopkins Symptom Checklist-21 (HSCL-21, Green, Walkey, McCormick, & Taylor, 1988)

Instructions: How have you felt during the past seven days including today?

Please indicate how distressing you have found the following things over this time:
Response Options:
"Not at all"
"A little"
"Quite a bit"
"Extremely"

1. Difficulty in speaking when you are excited
2. Trouble remembering things
3. Worried about sloppiness or carelessness
4. Blaming yourself for things
5. Pains in the lower part of your back
6. Feeling lonely
7. Feeling blue
8. Your feelings being easily hurt
9. Feeling others do not understand you or are unsympathetic
10. Feeling that people are unfriendly or dislike you
11. Having to do things very slowly in order to be sure you are doing them right
12. Feeling inferior to others
13. Soreness of your muscles
14. Having to check and double-check what you do
15. Hot or cold spells
16. Your mind goes blank
17. Numbness of tingling in parts of your body
18. A lump in your throat
19. Trouble concentrating
20. Weakness in part of your body
21. Heavy feelings in your arms and legs

Appendix D

Relationship Assessment Scale (RAS: Kendrick, 1988)

Rate your satisfaction with your current relationship from 1 to 5 according to the following scale: (1 = low satisfaction; 5 = high satisfaction).

1. How well does your partner meet your needs?

2. In general, how satisfied are you with your relationship?

3. How good is your relationship compared to most?

*4. How often do you wish you hadn't gotten into this relationship?

5. To what extent has your relationship met your original expectations?

6. How much do you love your partner?

*7. How many problems are there in your relationship?

* reversed scored

Appendix E

Beck Anxiety Inventory (BAI: Beck, Brown, Epstein, & Steer, 1988)

Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past month, including today, by circling the number in the corresponding space in the column next to each symptom.

	Not At All	Mildly but it didn't bother me much.	Moderately - it wasn't pleasant at times	Severely – it bothered me a lot
Numbness or tingling	0	1	2	3
Feeling hot	0	1	2	3
Wobbliness in legs	0	1	2	3
Unable to relax	0	1	2	3
Fear of worst happening	0	1	2	3
Dizzy or lightheaded	0	1	2	3
Heart pounding/racing	0	1	2	3
Unsteady	0	1	2	3
Terrified or afraid	0	1	2	3
Nervous	0	1	2	3
Feeling of choking	0	1	2	3
Hands trembling	0	1	2	3
Shaky / unsteady	0	1	2	3
Fear of losing control	0	1	2	3
Difficulty in breathing	0	1	2	3
Fear of dying	0	1	2	3
Scared	0	1	2	3
Indigestion	0	1	2	3
Faint / lightheaded	0	1	2	3
Face flushed	0	1	2	3
Hot/cold sweats	0	1	2	3

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